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Neastacilla Tattersall, 1921 redefined, with eight new species from Australia (Crustacea: Isopoda: Arcturidae)

RACHAEL A. KING

Museum Victoria, PO Box 666E, Melbourne, Vic. 3001, Australia, and Department of Zoology, University of Melbourne, Parkville, Vic. 3052, Australia
Present address: Southeastern Regional Taxonomic Center, Marine Resources Research Institute, PO Box 12599, Charleston, SC 29422-2599, USA (rachaelking@crustacea.net)

Abstract

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The arcturid isopod genus *Neastacilla* is rediagnosed and eight new species from Australia (*Neastacilla coonabooloo* sp. nov., *Neastacilla kanowna* sp. nov., *Neastacilla lawadi* sp. nov., *Neastacilla marrimarri* sp. nov., *Neastacilla soelae* sp. nov., *Neastacilla tarni* sp. nov., *Neastacilla tharnardi* sp. nov. and *Neastacilla yuriel* sp. nov.) are described. Five species from Australia and New Zealand are rediagnosed. A key to differentiate Australian and New Zealand species is presented.

Keywords

Crustacea, Isopoda, Arcturidae, *Neastacilla*, taxonomy, Australia

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Introduction

The valviferan isopod family Arcturidae Dana, 1849 is represented in Australia by four genera. *Parastacilla* Hale, 1924 is an endemic Australian genus, its four species reviewed by King (2000). *Amesopous* Stebbing, 1905 is monotypic and its species, *A. richardsonae* Stebbing, 1905, was recorded from tropical Australia by Poore et al. (2002). *Astacilla* Cordiner, 1793 is represented by one species (King, 2003). The Australian fauna is dominated by species of *Neastacilla* Tattersall, 1921, here reviewed.

The systematics of *Neastacilla* has always been problematical. The genus was established by Tattersall (1921) for New Zealand specimens of '*Astacilla falclandica* Ohlin', a species originally described from the Falkland Islands. Tattersall's record was shown to be a misidentification and Tattersall's species is now *Neastacilla tattersalli* (Lew Ton and Poore, 1986a). Tattersall (1921) differentiated *Neastacilla* from *Astacilla* Cordiner, 1793 primarily on the absence of an anterolateral expansion of the head and pereonite 1 over the mouthparts (apparent in *Astacilla*) and by the completely fused pleon (as opposed to visible pleonite segmentation in *Astacilla*). These characters were later shown to be variable as more species were described (Nordenstam, 1933; Hale, 1946) and the newer genus did not become widely accepted.

Nordenstam (1933) was the first to rediagnose *Neastacilla*. Modifying Tattersall's diagnosis, Nordenstam argued that up to

three pleonite segments could be detected "indicated by shallow grooves," the first pereopod lacked an unguis, and the endopod of the uropod bore one seta. He also suggested (erroneously it turns out) that *Astacilla amblyura* Stebbing belonged in *Neastacilla*. Nordenstam acknowledged the lack of descriptive information concerning key *Neastacilla* characters and despite his diagnosis was not fully convinced of the validity of *Neastacilla*. He believed that *Neastacilla* would be made redundant when more detailed information was known or when species intermediate between *Astacilla* and *Neastacilla* were found.

Later, Hale (1946) documented arcturid species from Australia, New Zealand and the Southern Ocean. He described five new species, which he placed in *Astacilla*, and transferred his two previously described species of *Neastacilla* (*N. algensis, N. deducta*) to *Astacilla*. While acknowledging the morphological similarities of his new species to *Neastacilla*, as defined by Nordenstam (1933), Hale argued that *Neastacilla* was ambiguously defined; all his specimens possessed two uropodal endopod setae and so he placed them in *Astacilla*. Despite reservations, neither Hale (1946) nor Guiler (1949) who later described Tasmanian species, attempted to synonymise *Neastacilla*. Birstein (1963) was the first to argue that *Neastacilla* should be synonymised with *Astacilla* on the basis of its variable characters. Later, Monod (1970) synonymised *Neastacilla* with *Astacilla* in his partial revision of *Astacilla*.

Following extensive examination of material from the north-west Pacific, Kussakin (1972) re-established the genus, placing more importance on the morphology of the anterior pereopods. He defined *Neastacilla* as including those taxa possessing a dactylus and an unguis on pereopod 1 and possessing shortened dactyli, without ungui, on pereopods 2–4. This was compared to *Astacilla*, which he defined as including those species lacking a dactylus on pereopod 1 and lacking dactyli on pereopods 2–4. He subsequently re-assigned all Pacific Ocean species of *Astacilla* to *Neastacilla*.

Kussakin's views were supported by H. M. Lew Ton (unpublished B.Sc.(Hons) thesis, Monash University, 1980) who studied Australian species of *Neastacilla*. She concluded that the characters Kussakin used to separate the two genera were valid but should be modified slightly, as some Australian species of *Neastacilla* lack dactyli on pereopods 2–4 (some species with dactyli on pereopod 4 only and others without dactyli on pereopods 2–4). The loss of the dactyli on pereopods 2–4 occurs elsewhere in Arcturidae (in *Parastacilla*) and in another valviferan family, Chaetiliidae (in *Chaetilia* Dana) and is considered a synapomorphy for each genus. Lew Ton found biogeographical support for the distinction of *Astacilla* from *Neastacilla*. Most species of *Neastacilla* are found in the Pacific and those of *Astacilla* in the Atlantic Ocean, Mediterranean and Indian Ocean.

Without the evidence of Lew Ton's comprehensive unpublished work, other authors questioned Kussakin's (1972) conclusions. Schultz (1981) attempted to synonymise *Neastacilla*, placing all the known species into *Astacilla*, *Arcturus* Latreille or *Arcturella* Sars as he regarded the presence of an unguis on pereopod 1 as a variable character. Menzies and Kruczynski (1983) argued that the elongation of pereonite 4 was a more useful character than whether or not an unguis was present on pereopod 1 and also treated *Neastacilla* and *Astacilla* as synonyms.

While characters used in diagnosing the genus remain debatable, Kussakin's observations provide support for the recognition of *Neastacilla* as a genus. There have been no revisions of the genus in the past 20 years. As the type of *Astacilla falclandica* has been lost, Lew Ton and Poore (1986a) redescribed *N. falclandica* (Ohlin, 1901), proposing that it should be kept as the type species for the genus despite Tattersall's mistake (Lew Ton and Poore, 1986b; ICZN, 1987).

Whether or not *Neastacilla* is a monophyletic group is yet to be determined, but the genus remains valid. In this contribution a new diagnosis of *Neastacilla* is given, eight new Australian species are described, and five Australian and New Zealand species are rediagnosed. Poore et al. (2002) listed *Arcturus brevicornis* Haswell, 1881 as a possible Australian species of *Neastacilla* but in the absence of a good description, and of type material, the name cannot be applied to any known species. A key is provided for all species from these two countries.

Isopods came from collections in Australia of Museum Victoria, Melbourne (NMV), the South Australian Museum, Adelaide (SAM), the Australian Museum, Sydney (AM) and the Tasmanian Museum and Art Gallery, Hobart (TM). Material of some species was unavailable for study and short diagnoses derived from published literature are presented instead of full descriptions (see *Remarks* sections). Illustrations were made using microscopes with a camera lucida attachment. Australian Aboriginal names used as species epithets are to be treated as nouns in apposition. States and territories of Australia are abbreviated as follows: NSW (New South Wales), Vic. (Victoria), WA (Western Australia), SA (South Australia), Tas. (Tasmania), and NT (Northern Territory). Dimensions are total body length. In figures limbs are abbreviated: A1, antenna 1; A2, antenna 2; MX1, maxilla 1; MX2, maxilla 2; MD, mandible; MXP, maxilliped; P1–P5, pereopods 1–5; PL1–PL2, pleopods 1, 2; U, uropod or its rami; Pe, penial plate.

Arcturidae Dana, 1849

Neastacilla Tattersall, 1921

Neastacilla Tattersall, 1921a: 243–244.—Nordenstam, 1933: 118–119.—Kussakin, 1972: 178-189-.—Kensley, 1978: 31.—Wägele, 1991: 91.

Type species. Astacilla falclandica Ohlin, 1901, by plenary powers (ICZN, 1987).

Diagnosis. Body cylindrical, slender and strongly geniculate between pereonites 4 and 5. Pereonite 1 fused to head, fusion indicated by groove, occasionally by lateral incision. Pereonite 4 elongate, 3–10 times length of all other pereonites. Pleon about same length as combined lengths of pereonites 5–7. Antenna 2 slender, flagellum of 2 or 3 articles with claw. Pereopod 1 included within margin of head, dactylus as long as wide; carpus and propodus of subequal length; dactylus without unguis, with distal setae. Pereopods 2–4 slender; with long, closely spaced setae; dactylus reduced and claw-like [lost entirely in a few Australian species]; flexion between carpus and propodus absent. Pereopods 5–7 progressively shorter posteriorly, dactylus with unguis and secondary unguis. Oostegites present on pereopods 1–4; oostegite 4 forming the major part of

marsupium, thickened. Male pleopod 1 with lateral notch and setae on posterior face. Male pleopod 2 appendix masculina curved, with a ridge on posterior face, not extending much past endopod. Penial plate simple, tapering to apex, straight.

Composition. 38 species, excluding those *inquirenda* (see Table 1).

Remarks. Characters such as the morphology of pleopods 1 and 2 (including the short, curved appendix masculina), simple fused penial plate and the morphology of oostegite 4 in females are new characters used here to redefine *Neastacilla*. Importance has also been placed on the absence of flexion between the carpus and propodus in pereopods 2–4 (apparent in *Astacilla*). Many existing description do not include these characters and so some species (especially those from the North-west Pacific) remain uncertainly placed within *Neastacilla*.

According to Kussakin's criteria *N. tzvetkowae* belongs to *Astacilla* or possibly *Arcturus* because it possesses an antenna 2 with 3 or more flagellar articles and probably has an unguis

Table 1. Distributional information for *Neastacilla* species

Species of *Neastacilla*	Distribution	Depth range
N. algensis Hale,1924	Australia, SA	11–12 m
N. antipodea Poore, 1981	Subantarctic New Zealand	intertidal to 15
N. attenuata (Hale, 1946)	Australia, NSW	60–83 m
N. bacillus (Barnard, 1920)	South Africa	5–400 m
N. californica (Boone, 1918)	California, USA	18–100 m
N. coonabooloo sp. nov.	south-eastern Australia (NSW, Vic., Tas.)	subtidal to 9 m
N. deducta Hale, 1924 (synonym: *Astacilla vicaria* Hale, 1946)	south-eastern Australia (NSW, Vic., Tas., SA)	9 m
N. diomedeae (Benedict, 1898)	Straits of Magellan	subtidal to 34 m
N. estadoensis (Schultz, 1981)	Argentina	intertidal
N. exilis Kussakin, 1971	North-west Pacific	400 m
N. falclandica (Ohlin, 1901)	Falkland Islands	subtidal
N. fusiformis (Hale, 1946)	New Zealand, Hauraki Gulf	? (tow net)
N. inaequispinosa (Guiler, 1949) (synonyms: *Astacilla derwenti* Guiler, 1949; *A. oculata* Guiler, 1949; *A. unicornis* Guiler, 1949)	south-eastern Australia, Vic., Tas.	18 m
N. kanowna sp. nov.	South-eastern Australia, Vic., Tas., SA	subtidal to 29 m
N. kurilensis Kussakin, 1974	Kurile Islands	intertidal to 60 m
N. lawadi sp. nov.	Australia, Vic., Tas., SA, WA, NT	subtidal to 82 m
N. leucophthalma Kussakin, 1971	North-west Pacific	400 m
N. levis (Thomson and Anderton, 1921)	New Zealand, Cook Strait	31 m
N. littoralis Kussakin, 1974	Kurile Islands	0–45 m
N. macilenta (Hale, 1946)	Australia, NSW	2.5 m
N. magellanica (Ohlin, 1901)	Straits of Magellan	12–208 m
N. marionensis (Beddard, 1886) (synonym: *Astacilla kerguelenensis* Vanhöffen, 1914)	Marion Islands, Kerguelen Islands	45 to 340 m
N. marrimarri sp. nov.	Australia, WA	subtidal to 25 m
N. monoseta (Guiler, 1949)	South-eastern Australia, Vic., Tas.	subtidal to 84 m
N. nodulosa Kussakin, 1982	North-west Pacific	460 m
N. ochroleuca Kussakin and Vasina, 1990	Kurile Islands	880 m
N. pallidocula Kussakin and Vasina, 1990	Kurile Islands	910–920 m
N. polita (Gurjanova, 1936)	Sea of Japan	25–60 m
N. richardsonae Kussakin, 1982 (replacement name for *Astacilla dilatata* Richardson, 1909)	North-west Pacific	128 m
N. sheardi (Hale, 1946)	South-eastern Australia, NSW, Vic., SA	subtidal
N. soelae sp. nov.	Australia, WA	subtidal to 52 m
N. tarni sp. nov.	Australia, SA	subtidal to 15 m
N. tattersalli Lew Ton and Poore, 1986a	New Zealand	20–129 m
N. tharnardi sp. nov.	south-eastern Australia, Vic., SA	subtidal to 20 m
N. tristanica Sivertsen and Holthuis, 1980	South Atlantic, Nightingale Island	intertidal to 10 m
N. tuberculata (Thomson, 1879)	New Zealand	8–10 m
N. yuriel sp. nov.	New Zealand	subtidal to 201 m
N. vitjazi Kussakin, 1971	North-west Pacific	820–1050 m
Species inquirenda		
Neastacilla sirenkoi Kussakin and Vasina, 1990	Kurile Islands	880 m
Neastacilla tritaeniata Kussakin, 1982	Bering Sea	5–77 m
Neastacilla tzvetkowae Kussakin, 1974	Kurile Islands	0–43 m

on pereopod 1. *N. tritaeniata* was not thoroughly described but the flagellum of antenna 2 is composed of five articles and pereonite 4 is not elongate, suggesting a species of *Arcturus*. Similarly, *N. sirenkoi* has four antenna 2 flagellar articles and an unguis on the dactylus of pereopod 1 and should be placed in *Arcturus*. Further, these three species are all from the North-west Pacific where other species of *Arcturus* occur.

It is possible that *Astacilla cymodocea* Menzies and Glynn, 1968 from the Caribbean may yet be included in *Neastacilla* as it is described as lacking an unguis on pereopod 1 and lacking dactyli on pereopods 2–4. With no information available on the male sexual appendages (no specimens could be examined), it is not included here.

The morphology of arcturid oostegites is considered here to be taxonomically important, yet these characters have not often been included in species descriptions or illustrations. The morphology of oostegite 4, for example, was discovered to vary within *Neastacilla*. In some species of *Neastacilla* (*N. coonabooloo, N. deducta, N. monoseta* and *N. soelae*) there is a midlength suture in oostegite 4 that is not found in any other genus (Figs 3A, 4E, 18C, 20B). This suture is thought to be homologous to that separating the posterior lobe found on oostegite 4 in other species of *Neastacilla* (Fig. 7C, 9E, 14E) and in other genera. This condition is found in females where the pereonite 4 is extremely narrow and elongate. The smaller sutured posterior lobe may help aerate the marsupium while the female is brooding and it is possible that the suture found in elongate females performs a similar function.

Sexual characters are also argued here to be taxonomically important. Male pleopodal structure and female oostegites of the Australian and New Zealand species of *Neastacilla* differ from those in *N. richardsonae*, a north-western Pacific species. While it is the only species examined from this region, others from the north-western Pacific are figured similarly. *Neastacilla richardsonae* possesses a straight appendix masculina and a developed functional oostegite on pereopod 5. Both these character states are shared with *Arcturus* and not with Australian and New Zealand *Neastacilla* species. No information is available on the structure of the appendix masculina in other North-western Pacific species but the curved, ridged appendix masculina has so far only been found in Australian and New Zealand species of *Neastacilla* (and in *Parastacilla*, endemic to Australia (King, 2000)). The North-western Pacific species remain in *Neastacilla* for the time being but they may belong to *Arcturus*, a new genus, or both.

Biogeographical evidence supports the view that the north-western Pacific species may belong to another genus. The majority of the species from around Australia and New Zealand are found in the Pacific Ocean, with four of the new Australian species described here (*Neastacilla lawadi, N. marrimarri, N. soelae* and *N. yuriel*) reported from the Indian Ocean (coast of Western Australia). The centre of diversity of *Neastacilla* is evidently Australia and New Zealand with undisputed species also reported from subantarctic islands. Clearly, the north-west Pacific species are geographically separated from this radiation and thus are only conditionally included within the genus until further work can make clear their position. Species from southern South America, South Africa and California, USA were unavailable for study and are similarly included in the genus until further clarification.

Key to Australian and New Zealand species of *Neastacilla*

* Species known only from this sex.

1. Head with distinct dorsal tuberculation(s) or elevations(s) 2
— Head dorsally smooth or with small rounded elevation 14
2. Fusion of head and pereonite 1 indicated by a suture . . 3
— Fusion of head and pereonite 1 without a suture 4
3. Anterolateral margin of pereonite 1 extended laterally, head and pereonites 1–4 with large prominent branch–like elevations, pereopods 2–4 flattened *Neastacilla tharnardi*
— Anterolateral margin of pereonite 1 not extended laterally, head and pereonites 1–4 with very small anteriorly produced elevations, pereopods 2–4 cylindrical (male extremely elongate and elevations reduced to blunt tubercles) . . . . . *Neastacilla attenuata*
4. Pereonite 4 with large, prominent dorsal elevation(s) . . 5
— Pereonite 4 smooth or with small dorsal elevation(s) . . 7
5. Pleotelson equal to or longer than pereonites 5–7; pereonite 4 with proximal dorsal elevations (female pereonite 4 widened at midlength) 6
— Pleotelson shorter than pereonites 5–7; pereonite 4 with dorsal elevations at midlength (female pereonite 4 not laterally widened at midlength) . . . . . *Neastacilla marrimarri* (female)*
6. Pereonite 4 with large proximal dorsal elevation with 3 apices and 2 large lateral elevations; pleotelson with 2 pairs of lateral wings and widening distally to taper to a pointed apex (male pereonite 4 with single dorsal elevation proximally) . . . . . *Neastacilla tuberculata*
— Pereonite 4 with large dorsal midlength elevation with 2 apices with 2 large lateral elevations; pleotelson with 1 pair of lateral wings, not widened and sharply tapered to a bluntly rounded apex . . . . . *Neastacilla tarni* (female)
7. Pereonite 4 constricted (in dorsal view) for first third length 8
— Pereonite 4 not constricted (in dorsal view) for first third length 10
8. Pereonite 4 extremely elongate (10 times as long as pereonite 3 length) . . *Neastacilla inaequispinosa* (male)
— Pereonite 4 not extremely elongate (less than 10 times pereonite 3 length) 9
9. Pereonite 4 with dorsal and lateral elevations at midlength; pereonites 5–7 with a pair of dorsal elevations plus lateral elevations; pleotelson wider than pereonite 7, with 2 pairs of acute lateral wings . . . *Neastacilla fusiformis* (male)*
— Pereonite 4 with a pair of small anterodorsal round tubercles; pereonites 5–7 smooth; pleotelson not wider than pereonite 7, with pair of blunt lateral wings . . . . . .*Neastacilla tarni* (male)
10. Head and pereonite 4 each with a pair of distinct spine–like elevations (male with elevations reduced to blunt tubercles) . . . . . *Neastacilla lawadi*
— Head and pereonite 4 smooth or with weak/ blunt elevations 11

11. Pereonite 4 without elevations; pleotelson longer than pereonites 5–7 12
— Peronite 4 with dorsal elevations; pleotelson not longer than pereonites 5–7 13
12. Pleotelson apex acute; antenna 2 peduncular article 5 as long as article 4 ..... *Neastacilla soelae* (female)*
— Pleotelson apex truncate; antenna 2 peduncular article 5 slightly shorter than article 4 ..... *Neastacilla algensis* (female)*
13. Pereonite 4 with dorsal rounded tubercles extending laterally at midlength; pleotelson as long as pereonites 5–7, with 2 distinct blunt lateral wings ..... *Neastacilla sheardi* (female)*
— Pereonite 4 with a weak dorsal elevation at midlength; pleotelson longer than pereonites 5–7, without defined lateral wings ..... *Neastacilla inaequispinosa* (female)
14. Fusion of head and pereonite 1 defined with a suture 15
— Fusion of head and pereonite 1 not defined with a suture 19
15. Eye large and triangular shaped; pleotelson with an apical blunt notch ..... *Neastacilla levis*
— Eye small, round or oval in shape; pleotelson without apical blunt notch 16
16. Pleotelson with large, acute lateral wings with an acute apex ..... *Neastacilla monoseta*
— Pleotelson without defined lateral wings, apex blunt 17
17. Pereonite 4 not more than 6 times as long as pereonite 3, almost square in dorsal view (male without strong tuberculation and pereonite 4 not square in dorsal view) ..... *Neastacilla antipodea*
— Pereonite 4 extremely elongate (greater than 8 times as long as pereonite 3), not square in dorsal view 18
18. Pereonite 4 with a pair of distinct dorsal elevations proximally (female with pereonite 4 laterally expanded and upturned at midlength, male pereonite 4 narrow and constricted (in dorsal view) for first third length ..... *Neastacilla coonabooloo*
— Pereonite 4 dorsally smooth (female with slight lateral expansion of pereonite 4 at midlength) ..... *Neastacilla deducta*
19. Adult size 3–4 mm; pereonite 4 with a dorsal elevation at midlength (males with pereonite 4 constricted (in dorsal view) proximally but with dorsal elevation at first third length) ..... *Neastacilla yuriel*
— Adult size >7 mm; pereonite 4 without dorsal elevations 20
20. Head with horizontal unsutured groove below eye; pleotelson with defined lateral wings (female pereonite 4 with anterolateral extensions) ..... *Neastacilla macilenta*
— Head without horizontal unsutured grove; pleotelson without defined lateral wings 21
21. Pereonite 4 elongate (greater than 8 times as long as pereonite 3); pleotelson with a truncated apex ..... *Neastacilla kanowna*
— Pereonite 4 around 6 times as long as pereonite 3; pleotelson bluntly rounded ..... *Neastacilla tattersalli* (female)*

Neastacilla algensis Hale

Neastacilla algensis Hale, 1924: 213, fig. 3.—Hale, 1929: 313, fig. 314.—Poore et al., 2002: 258.

Astacilla algensis.—Hale, 1946: 174, fig. 7A.—Monod, 1970: 1139.

Diagnosis of female. Eyes small and triangular. Head with rounded dorsal elevation slightly posterior to eyes; lateral margin of head and pereonite 1 not incised. Pereonites 1–7 dorsally smooth, without distinct lateral extensions. Pereonite 4 extremely elongate (more than 10 times as long as pereonite 3). Pleon longer than pereonites 5–7 combined, lateral wings absent, apex truncate. 12.3 mm.

Male. Undescribed.

Distribution. Australia: South Australia; subtidal.

Remarks. Neastacilla algensis is diagnosed here with reference to the illustrations of Hale (1924, 1929), who described a single female specimen. The elongate, truncated pleotelson and extremely elongate pereonite 4 separates this species from all others in *Neastacilla*. It should be noted that the specimen drawn by Hale (1924, 1929) was probably an immature female as he described the oostegites as not fully developed.

Neastacilla antipodea Poore

Neastacilla antipodea Poore, 1981: 333, figs 2–3.

Material examined. New Zealand: NMV J679 (1 male, 1 female).

Description of female. Head without dorsal elevation, anterolateral lobes rounded, rostral point absent; lateral margin of head and pereonite 1 incised. Pereonite 1 without lateral extension, with dorsal elevation. Pereonites 2 and 3 progressively wider; with distinct keel-like dorsal elevations, bilobed lateral extensions visible on dorsal view. Pereonite 4 about 5 times as long as pereonite 3, with single keel-like anterior dorsal elevation, anterolateral and posterolateral margins extended, forming a square shape in dorsal view. Peronites 5–7 progressively shorter posteriorly; without dorsal elevations. Pleon length subequal to the combined lengths of pereonites 5–7, without dorsal elevations, without lateral wings, apex bluntly rounded.

Eyes small and oval. Antenna 1 reaching to second peduncular article of antenna 2; aesthetascs present distally on flagellum. Antenna 2 robust, more than half as long as body; flagellum of 3 articles, ending with claw, row of scales along full length.

Maxilla 1 mesial lobe with 3 plumose terminal setae; lateral lobe with 11 distal robust setae. Maxilla 2 mesial lobe with about 20 plumose setae; middle lobe with 6 setae; lateral lobe with 3 setae. Maxillipedal endite with numerous mesial setae, 2 coupling hooks; palp article 2 with mesial setal rows; articles 3 and 4 with mesial and lateral setal rows; article 5 with mesial and distal setae.

Pereopod 1 propodus slightly shorter than carpus; dactlyus as long as wide, without unguis. Pereopods 2–4 with dactylus. Pereopods 5–7 dactylus denticulate, with unguis and secondary unguis; secondary unguis three-quarters length of primary unguis. Uropodal exopod with 2 setae of subequal length. Oostegite 4 with sutured small posterior lobe.

Adult: 7.0–8.0 mm, juveniles 3.0–7.0 mm, mancas 2.0–3.0 mm

Male. Pereonite 1 without lateral extensions, without dorsal elevation. Pereonites 2 and 3 progressively wider; without distinct dorsal elevations, without lateral extensions. Pereonite 4 about 5 times as long as pereonite 3, without dorsal elevation, anterolateral and posterolateral margins not extended. Peronites 5–7 progressively shorter posteriorly, without dorsal elevations. Pleon length subequal to the combined lengths of pereonites 5–7, without dorsal elevations, without lateral wings, apex bluntly rounded.

Antennae, mouthparts, pereopods and uropods as for female.

Pleopod 1 exopod with lateral notch and 2 plumose lateral setae. Pleopod 2 appendix masculina with ridge on posterior face, curved, extending twice as long as the endopod, apex simple. Penial plate widened proximally, distally bulbous, apex acute.

Adult: 7.3–8.5 mm, juveniles 3.0–7.0 mm, mancas 2.0–3.0 mm.

Distribution. New Zealand: The Snares; intertidal to 15 m depth.

Remarks. Neastacilla antipodea is one of five species of *Neastacilla* (*N. fusiformis, N. tuberculata, N. levis, N. tattersalli*) known from New Zealand. The ornamentation of *N. antipodea* distinguishes it from all the other species immediately: specifically, the bluntly rounded pleon and the square shape of pereonite 4 of the female in dorsal view.

Neastacilla attenuata (Hale)

Astacilla attenuata Hale, 1946: 177–179, figs 9–10.—Monod, 1970: 1137–1139, figs 45–55.—Poore et al., 2002: 258.

Diagnosis of female. Eyes small and oval. Head with dorsal pair of small anteriorly directed spine-like elevations slightly posterior to eyes; lateral margin of head and pereonite 1 incised. Pereonites 2 and 3 with single dorsal, anteriorly directed spine-like elevations. Pereonite 4 extremely elongate (more than 10 times as long as pereonite 3); anterolateral margins expanded, with pair of small blunt anterodorsal elevations. Pleon longer than pereonites 5–7 combined, 2 pairs of small lateral wings present, apex acute. 7.5 mm.

Male. Similar to female except dorsal spines are reduced to blunt elevations on head and pereonites. 9.8 mm.

Distribution. Australia: New South Wales; 60–80 m.

Remarks. This species is diagnosed from the description of Hale (1946). This species is distinguished from other species by the presence of anteriorly directed spine-like dorsal elevations in the female, the elongate pereonite 4 (extremely elongate in males), and long pleon.

Neastacilla coonabooloo sp. nov.

Figures 1–3

Material examined. Holotype. Australia: Vic., Crib Point, Western Port, 38°21.15'S, 145°13.36'E, 9 m, 24 Mar 1965, NMV J1036 (1 female, 6.6 mm).

Paratypes. Australia: **NSW**. Moes Rock, S of Jervis Bay, AM P32681 (1 female), AM P32680 (1 female). **Vic.** Crib Point, Western Port, 38°21.63'S, 145°15.08'E, 9 m, 23 Feb 1965, NMV J978 (1 female), NMV J979 (1 female). Western Port, 38°22.0'S, 145°32.0'E, NMV J980 (1 immature female, 1 immature male). Mallacoota, 37°34.03'S, 149°46.02'E, 5 m, 6 Apr 1989, NMV J47324 (1 immature female). **Tas.** Breaksea Island, Bathurst Harbour, 4 m, 16 Feb 1989, NMV J47323 (1 male, 5.5 mm).

Description of female. Head with small dorsal elevation posteriorly, anterolateral lobes angular, small rostral point present; lateral margin of head and pereonite 1 incised. Pereonite 1 extended anterolaterally. Pereonites 2 and 3 without dorsal elevations, progressively wider, with small lateral extensions. Pereonite 4 about 8 times as long as pereonite 3, wider than previous pereonites, widest at midlength; with 2 anterior horn-like dorsal elevations, lateral margins extended and curved dorsally at midlength. Pereonites 5–7 progressively shorter posteriorly; without dorsal elevations. Pleon length greater than combined lengths of pereonites 5–7, without dorsal elevations, with small anterior lateral wings, apex rounded.

Eyes small and oval. Antenna 1 reaching to third peduncular article of antenna 2; aesthetascs present distally and laterally on flagellum. Antenna 2 slender, more than half as long as body; flagellum of 2 articles ending with claw, row of scales along full length.

Maxilla 1 mesial lobe with 3 plumose terminal setae; lateral lobe with 9 distal robust setae. Maxilla 2 mesial lobe with 22 plumose setae; middle lobe with 3 setae; lateral lobe with 3 setae. Maxillipedal endite with 13 mesial setae, 1 coupling hook; palp article 2 with mesial setal rows; articles 3 and 4 with mesial and lateral setal rows; article 5 with mesial and distal setae.

Pereopod 1 propodus as long as carpus; dactylus twice as long as wide, without unguis. Pereopods 2–3 dactylus present. Pereopod 4 dactylus absent. Pereopods 5–7 dactylus somewhat denticulate, with unguis and secondary unguis; secondary unguis half-length of primary unguis. Uropodal exopod with 2 setae of subequal length. Oostegite 4 with suture at midlength.

5.0–6.6 mm.

Male. Head with a small dorsal elevation posteriorly, anterolateral lobes angular, small rostral point present; lateral margin of head and pereonite 1 incised. Pereonite 1 extended anterolaterally. Pereonites 2 and 3 of similar width; without dorsal elevations, small lateral extensions present. Pereonite 4 about nine times as long as pereonite 3, constricted for first third of length; with 2 anterior horn-like dorsal elevations, anterolateral margins not extended. Pereonites 5–7 progressively shorter posteriorly; without dorsal elevations. Pleon length greater than combined lengths of pereonites 5–7; without dorsal elevations, with small anterior lateral wings, apex rounded.

Antenna 1 reaching half way along third peduncular article of antenna 2; aesthetascs present distally and laterally on flagellum. Antenna 2 slender, more than half as long as body; flagellum of 3 articles ending with a claw, a row of scales full length.

Mouthparts, pereopods and uropods as for female.

Pleopod 1 exopod with a lateral notch and 2 plumose lateral setae of unequal length. Pleopod 2 appendix masculina

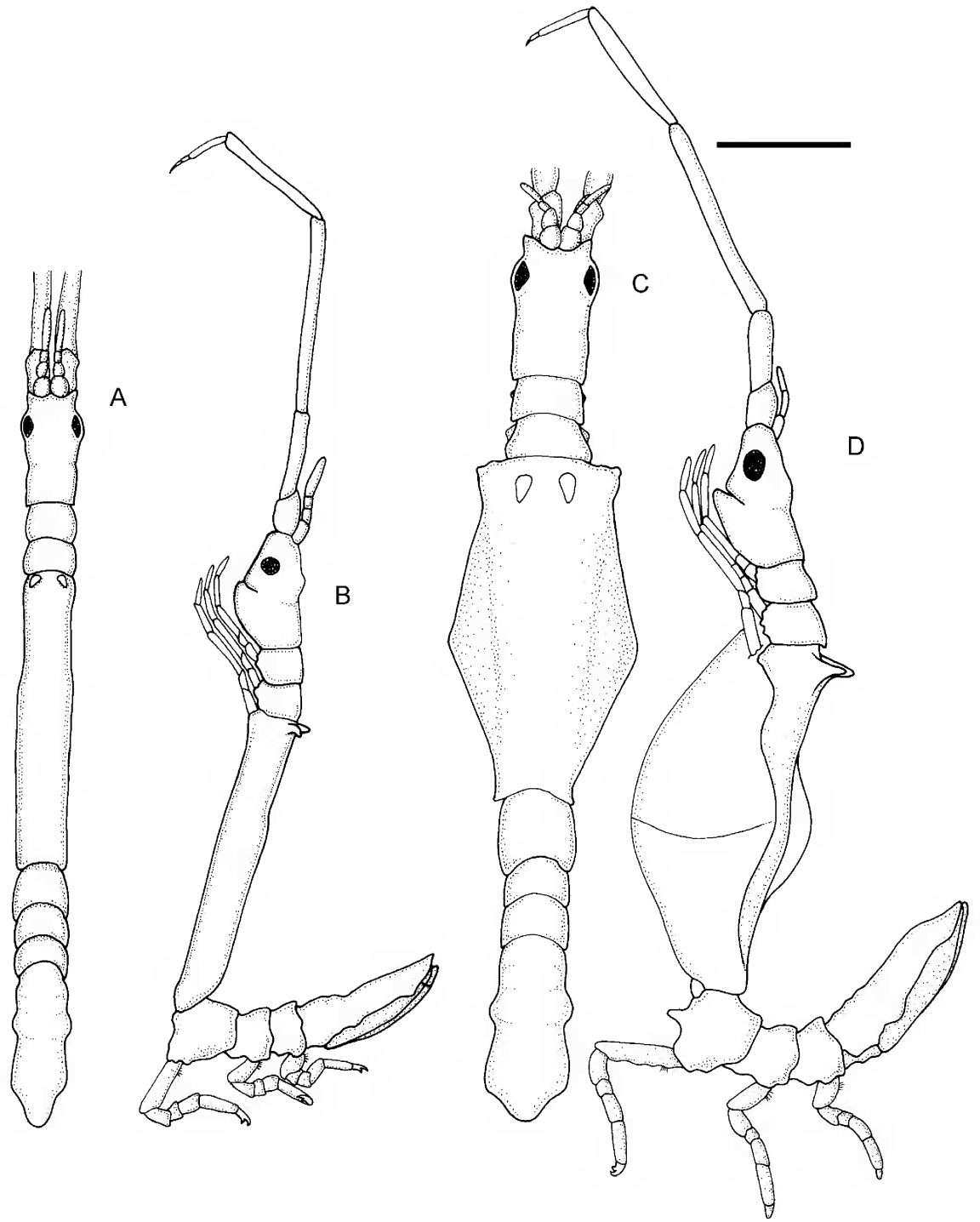

Figure 1. *Neastacilla coonabooloo* sp. nov., male (NMV J47323): A, dorsal view; B, lateral view. Female holotype (NMV J1036): C, dorsal view; D, lateral view. Scale = 1.0 mm.

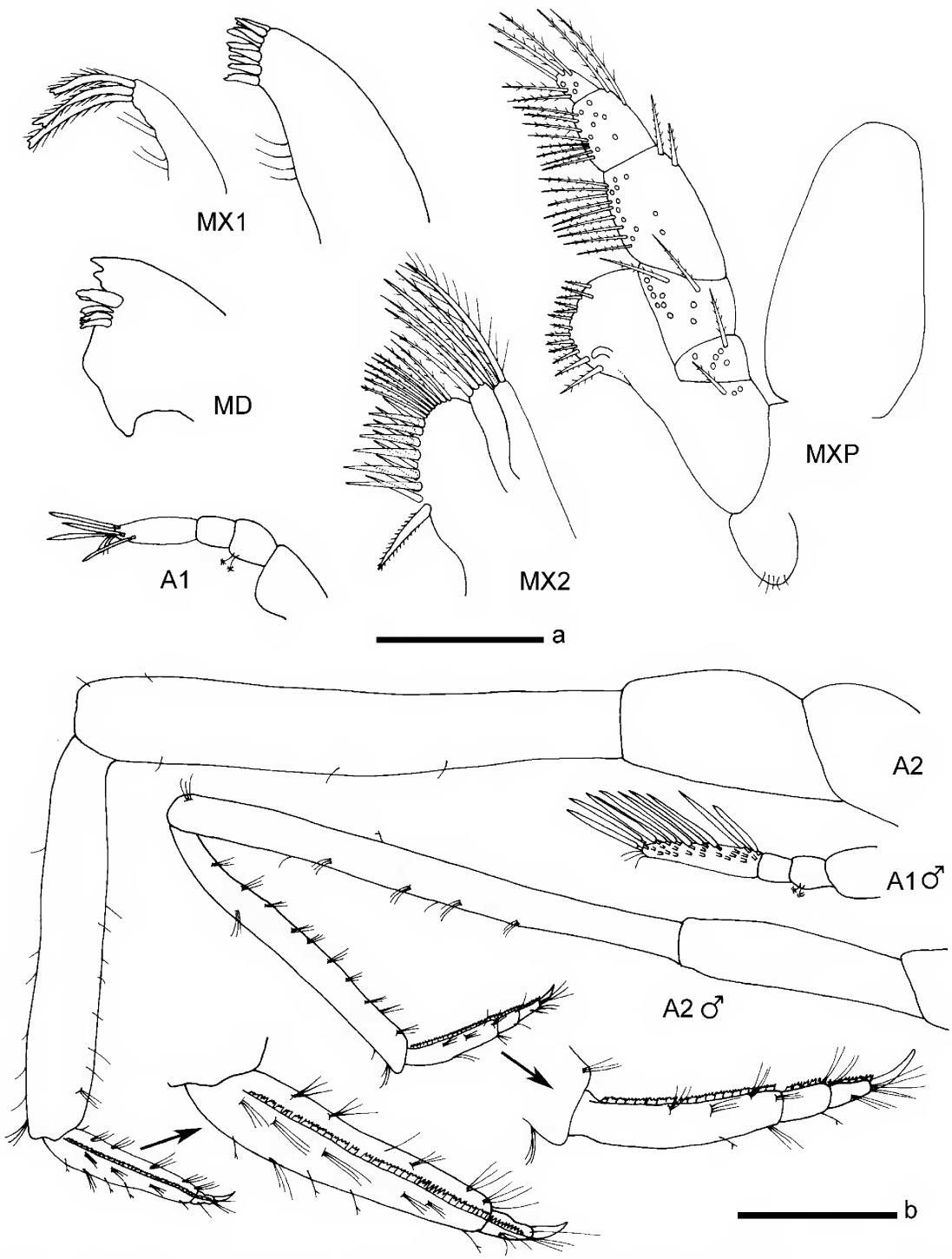

Figure 2. *Neastacilla coonabooloo* sp. nov., female holotype (NMV J1036): MX1, left MX2, left MD, left MXP, A1, A2, antenna 2. Male (NMV J47323): A1♂, A2♂. Scales: a (MXP, MX1, MX2, MD) = 0.2 mm; b (A1, A2) = 0.5 mm.

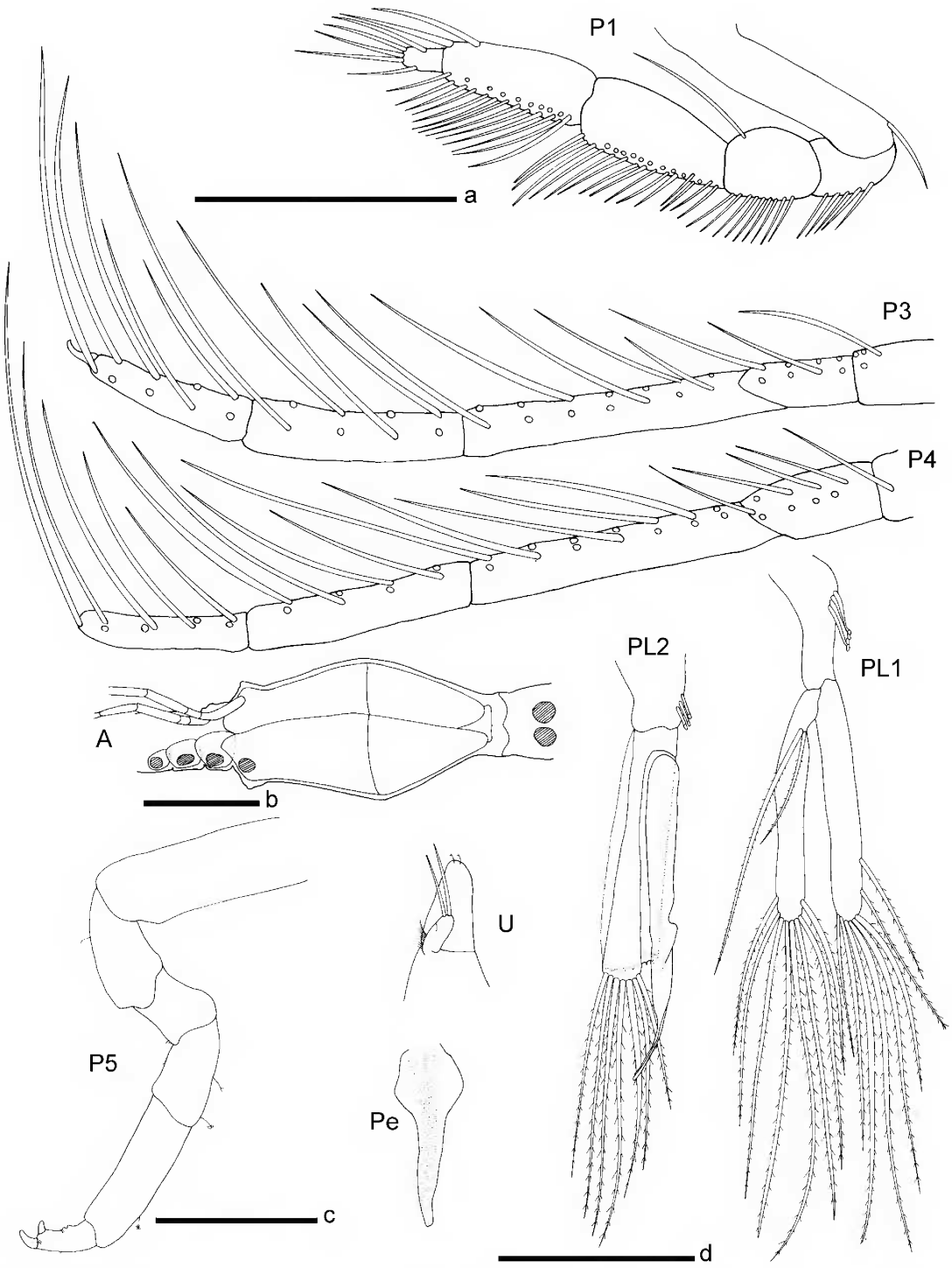

Figure 3. *Neastacilla coonabooloo* sp. nov., female holotype (NMV J1036): P1, P3, P4, P5, U; A, ventral view. Male (NMV J47323): Pe, PL1, PL2. Scales: a (P1, P3, P4) = 0.5 mm; b = (A) 1.0 mm; c (P5) = 0.5 mm; d (U, Pe, PL1, PL2) = 0.2 mm

with ridge on posterior face, curved, extending third length past the endopod, apex simple. Penial plate widened proximally, distally tapered, apex simple.

4.5–5.6 mm

Distribution. Australia: New South Wales, Victoria, Tasmania; subtidal to 9 m depth.

Etymology. "Coonabooloo" is an Aboriginal word meaning two shoulders and refers to the extended lateral margins of pereonite 4 in the female of this species.

Remarks. This species possesses an incised dorsolateral groove at the fusion of the head and pereonite 1 as does *Neastacilla deducta* and *N. monoseta*. Females of *N. coonabooloo* are distinguished from these two species by the presence of extended lateral margins on pereonite 4 and two anterior horn-like elevations on pereonite 4. Males of *N. coonabooloo* possess smaller horn-like elevations. *N. coonabooloo* can be further differentiated from *N. monoseta* by possessing a pleon with small rounded lateral wings, as opposed to the large acute wings in *N. monoseta.* In the material examined here, the heights of the dorsal elevations on pereonite 4 vary from small bumps to spine like elevations.

Neastacilla deducta Hale

Figures 4–6

Neastacilla deducta Hale, 1925: 33, fig. 16.—Hale, 1929: 313, fig. 315.—Monod, 1970: 1139.—Poore et al., 2002: 259.

Astacilla deducta.—Hale, 1946: 174–175, fig. 7.

Astacilla vicaria Hale, 1946: 175–176, fig. 8.—Monod, 1970: 1139.

Material examined. Holotype. Australia: SA, Port Adelaide (Gulf St Vincent) (1 male) SAM C 273. Paratypes. Australia: SA, Port Adelaide (Gulf St Vincent) SAM C 274.

Syntypes of *Astacilla vicaria* Hale, 1946. NSW, off Yarra Bay, Botany Bay, AM P8967 (8 specimens).

Other material. Australia: **NSW.** Jervis Bay, 35°08.0'S, 150°43.0'E, 2 m, 23 Apr 1985, NMV J11199 (2 females, 4 males, 1 immature female). Port Kembla, 34°29.0'S, 150°55.0'E, Mar 1978, NMV J16516 (1 female). **Vic.** Oberon Bay, 39°04.2'S, 146°19.4'E, 21 m, 05 Feb 1982, NMV J11200 (11 females, 7 males, 5 immature males, 2 manca 2). **Tas.** 43°17.0'S, 147°15.'E, 3 m, 20 Mar 1988, NMV J48664 (1 female); 39°32.8'S, 144°16.0'E, 18 m, 1 Nov 1980, NMV J8840. **SA.** Venus Bay, 33°13.2'S, 134°40.1'E, 2 m, 23 Apr 1985, NMV J40673 (1 female, 11.5 mm), NMV J 40674 (1 male, 11.3 mm), NMV J16569 (12 individuals); Venus Bay, 33°13.8'S, 134°40.1'E, 3 m, 21 Apr 1985, NMV J16570 (2 females, 1 male, 2 immature females, 1 immature male, 3 juveniles, 2 manca-2). NE side of Topgallant I., 33°43.0'S, 134°36.6'E, 20 m, 21 Apr 1985, NMV J16568 (3 females).

Description of female. Head without dorsal elevation, anterolateral lobes angular, small rostral point present; lateral margin of head and pereonite 1 incised. Pereonite 1 with an anterolateral expansion. Pereonites 2 and 3 similar width, without dorsal elevations, without lateral extensions. Pereonite 4 about 10 times as long as pereonite 3, with some small anterior dorsal elevations, anterior anterolateral margins extended, not greatly wider then previous pereonites. Pereonites 5–7 progressively shorter posteriorly, without dorsal elevations. Pleon length greater than combined lengths of pereonites 5–7, without dorsal elevations, with small anterior lateral wings, apex blunt.

Eyes small and subtriangular. Antenna 1 reaching to the end of second peduncular article of antenna 2; aesthetascs present laterally and distally on flagellum. Antenna 2 slender, more than half as long as body; flagellum of 2 articles, ending with claw, with row of scales along full length.

Maxilla 1 mesial lobe with 3 terminal setae; lateral lobe with 9 distal robust setae. Maxilla 2 mesial lobe with 26 plumose setae, middle lobe with 3 setae, lateral lobe with 3 setae. Maxillipedal endite with 11 mesial setae; 1 coupling hook; palp article 2 with mesial setal rows, article 3 with mesial and lateral setal rows, article 4 with mesial setae, article 5 with distal setae.

Pereopod 1 propodus as long as carpus; dactylus slightly longer than wide, without unguis. Pereopods 2–3 dactylus present. Pereopod 4 dactylus absent. Pereopods 5–7 dactylus not denticulate, with unguis and secondary unguis; secondary unguis two-thirds length of primary unguis. Uropodal exopod with 2 setae of subequal length. Oostegite 4 with suture at midlength.

8.0–10.5 mm.

Male. Head and pereonites 1–3 as for female. Pereonite 4 about 10 times as long as pereonite 3; without dorsal elevations, constricted for the first quarter length. Pereonites 5–7 progressively shorter posteriorly, without dorsal elevations. Pleon length greater than combined lengths of pereonites 5–7, without dorsal elevations, with small lateral wings, apex blunt.

Antenna 1 extending past the end of the second peduncular article of antenna 2; aesthetascs present laterally and distally on flagellum. Antenna 2 slender, more than half as long as body; flagellum of 3 articles and claw; with a row of scales along full length.

Mouthparts, pereopods and uropods as for female.

Pleopod 1 exopod with lateral notch and 2 plumose lateral setae of unequal length. Pleopod 2 appendix masculina with ridge on posterior face, curved, extending quarter length past the endopod, apex simple. Penial plate widened proximally, tapering distally, apex notched.

7–10 mm.

Distribution. Australia: New South Wales, Victoria, Tasmania, South Australia; subtidal to 21 m depth.

Remarks. Neastacilla deducta was described from South Australia from a single male by Hale (1925). He later described a female and 'subadult' male of *Astacilla vicaria* from eight syntypes from New South Wales (Hale, 1946). The distinction between the two species has never been clear. Hale (1946) argued that the structure of the second antenna, including the number of flagellar articles; eye size and expansion of pereonite 1 were differences. Examination of type material of *N. vicaria* and *A. deducta* and of other material at Museum Victoria has shown that the two are synonymous, a view shared by Poore et al. (2002). The type males of *A. vicaria* males were all immature, some up to 1 or 2 moults from maturity as shown by the underdeveloped appendix masculina. Juveniles and females always possess two antenna 2 flagellar articles; only mature males have a flagellum of 3 articles. This condition is also seen in *N. coonabooloo* sp. nov.

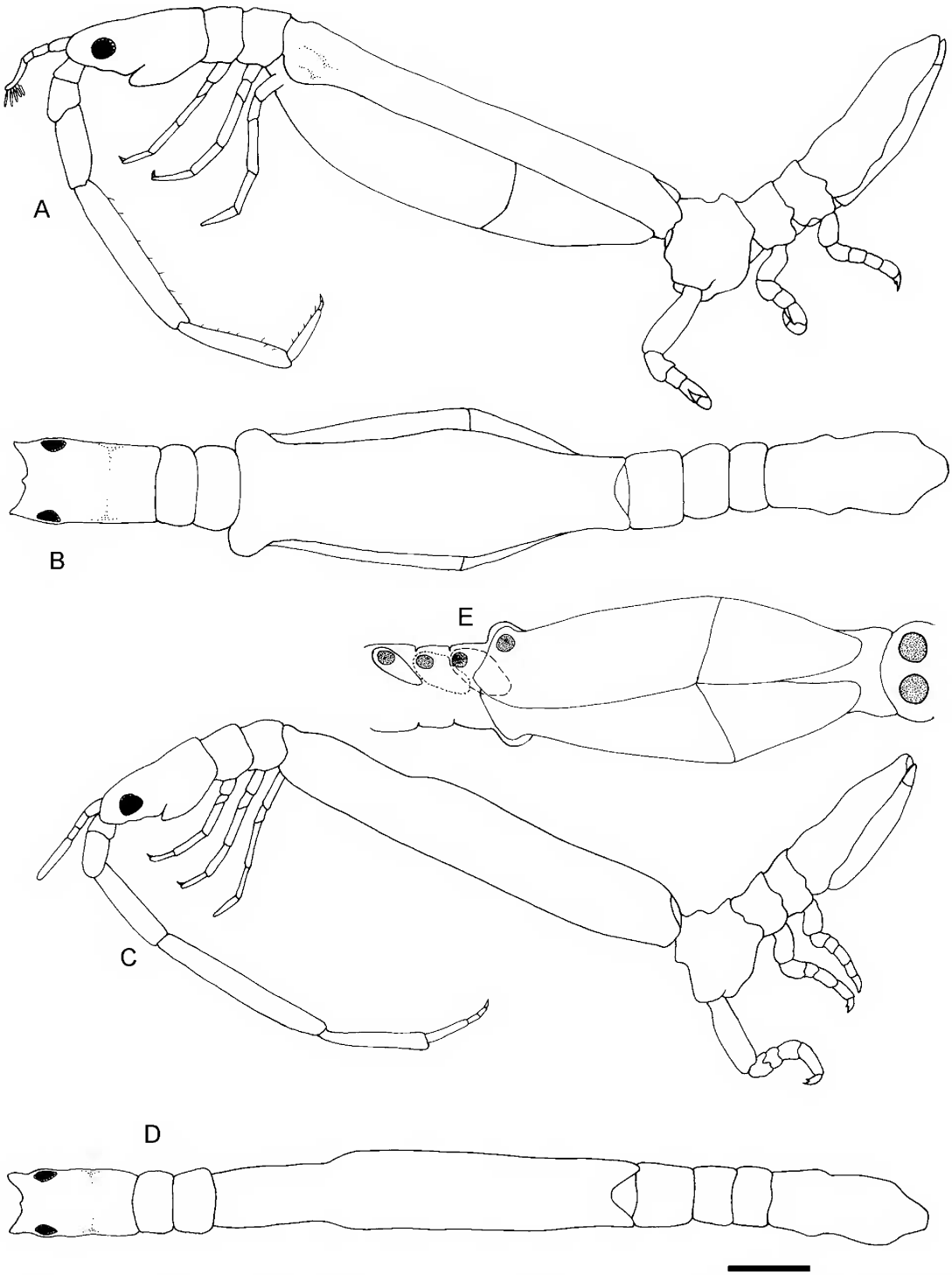

Figure 4. *Neastacilla deducta* Hale, 1924, female (NMV J40673): A, lateral view; B, dorsal view; E, ventral view with oostegites. Male (NMV J40674): C, ventral view; D, dorsal view. Scale = 1.0 mm.

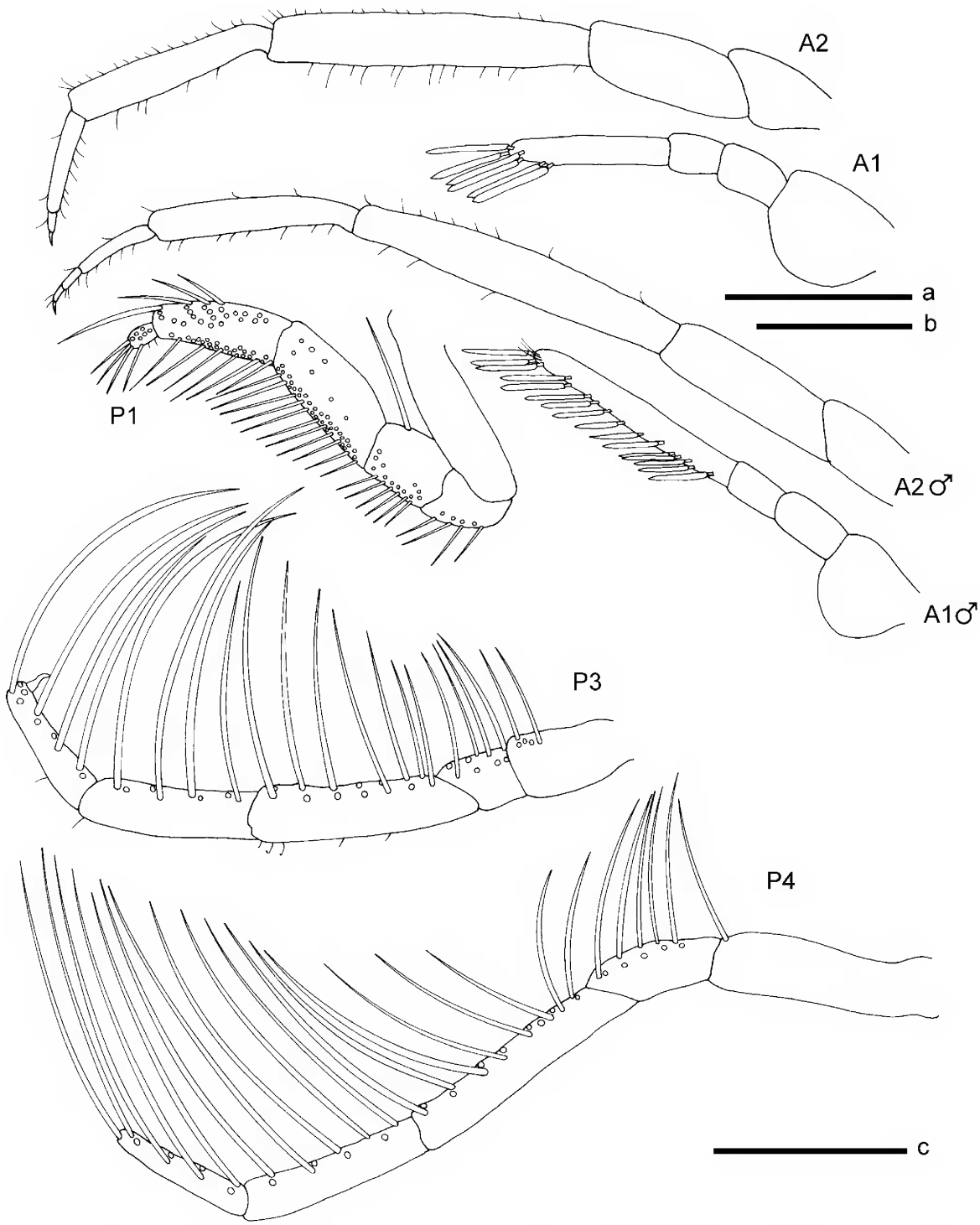

Figure 5. *Neastacilla deducta* Hale, 1924, female (NMV J40673): A1, A2, P1, P3, P4. Male (NMV J40674): A1♂, A2♂. Scales: a (A1, A1♂) = 0.5 mm; b (A2, A2♂) = 1.0 mm; c (P1, P3) = 0.5 mm.

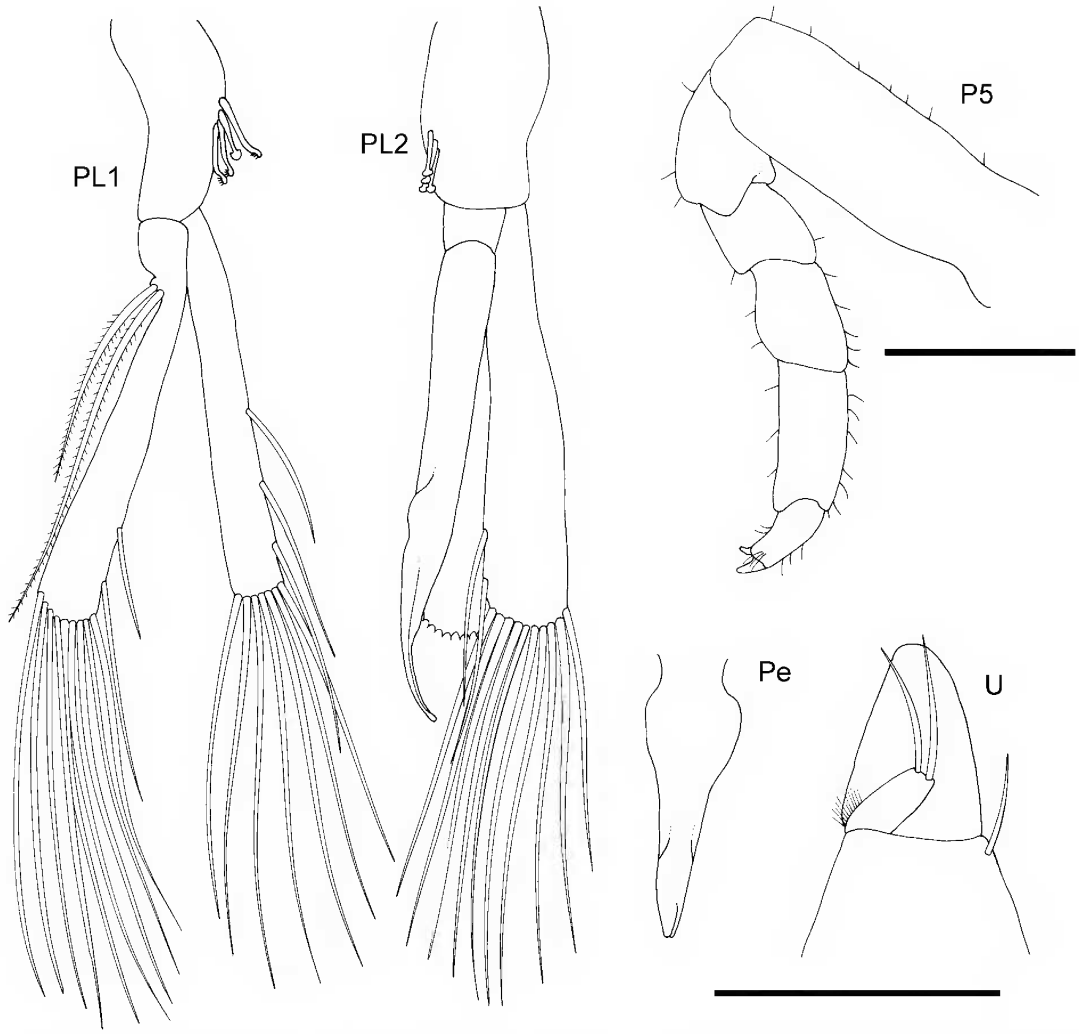

Figure 6. *Neastacilla deducta* Hale, 1924, male (NMV J40674): PL1, PL2, Pe. Female (NMV J40673): P5, U. Scales a (P5) = 0.5 mm; b (PL1, PL2, Pe, U) = 0.5 mm.

Neastacilla deducta looks most similar to *N. monoseta* and *N. kanowna* sp. nov. It is distinguished from *N. monoseta* by the blunt pleotelson without lateral expansions and from *N. kanowna* by the presence of a shallow dorsolateral groove between the head and pereonite 1, which is incised laterally.

Neastacilla fusiformis (Hale)

Astacilla fusiformis Hale, 1946:185–186, fig. 14.—Hurley, 1961: 264.—Monod, 1970: 1139.

Diagnosis of male. Eyes small and subtriangular. Head with small dorsal elevation anterior to eyes and pair of larger dorsal elevations slightly posterior to eyes, lateral margin of head and pereonite 1 not incised. Pereonites 1–3 with single dorsal elevation and pair of lateral elevations. Pereonite 4 7 times as long as pereonite 3, anteriorly restricted in dorsal view, with pair of dorsal elevations and 2 pairs of dorsolateral elevations at midlength, with single dorsal elevation and pair of dorsolateral elevations posteriorly. Pereonites 5–7 with pair of dorsal evelations and pair of lateral elevations. Pleon slightly longer than pereonites 5–7 combined, with 3 pairs of dorsal elevations and lateral elevations, 2 pairs of lateral wings present, apex acute. 5 mm.

Female. Undescribed.

Distribution. New Zealand, North Island, Huaraki Gulf; subtidal.

Remarks. Neastacilla fusiformis was described by Hale (1946) from a single male specimen taken in a tow net from the Hauraki Gulf, New Zealand. This specimen is similar to the

male of *N. tuberculata* and *N. sheardi*, however neither of these species possesses a pereonite 4 that is anteriorly constricted in dorsal view or sharp dorsal and dorsolateral elevations.

Neastacilla inaequispinosa (Guiler)

Figures 7–8

*Astacilla inaequispinos*a Guiler, 1949: 49–53, figs 3, 4.—Guiler, 1952: 24.—Monod, 1970: 1139.

Astacilla unicornis Guiler, 1949: 53–55, fig. 5.—Guiler, 1952: 24.—Monod, 1970: 1139–1140.

Astacilla derwenti Guiler, 1949: 56–57, fig. 6.—Guiler, 1952: 24.—Monod, 1970: 1139–1140.

Astacilla oculata Guiler, 1949: 59–61, fig. 7.—Guiler, 1952: 24.—Monod, 1970: 1139–1140.

Neastacilla inaequispinosa.—Poore et al., 2002: 259.

Material examined. Syntypes of *Astacilla inaequispinosa* Guiler, 1949. Tas., N end of D'Entrecasteaux Channel, TMG76a (male), TMG76b (1 specimen).

Holotype of *Astacilla derwenti* Guiler, 1949. Tas., N end of D'Entrecasteaux Channel, TM (not registered).

Holotype of *Astacilla oculata* Guiler, 1949. Tas., N end of D'Entrecasteaux Channel, TM (not registered).

Holotype of *Astacilla unicornis* Guiler, 1949. Tas., N end of D'Entrecasteaux Channel, TM (not registered).

Australia: **Vic.** Port Phillip Bay, 38°17.6'S, 144°42.3'E, 17 m, 4 Mar 1991, NMV J39217 (1 female, 6.4 mm), NMV J40691(male, 8 mm) NMV J40695 (1 male, 6 mm). Western Bass Strait, 39°26.3'S, 143°06.8'E, 115 m, 21 Nov 1981, NMV J8843 (1 female, 7.0 mm; 2 males, 7 mm); 39°21.0'S, 143°06.0'E, 101 m, 10 Oct 1980, NMV J8844 (1 female, 6.5 mm); 39°06.0'S, 143°21.0'E, 59 m, 8 Oct 1980, NMV J8837 (1 immature male, 5.5 mm); 39°20.0'S, 143°34.0'E, 95 m, 10 Oct 1980, NMV J8842 (1 male, 10 mm). Western Port, 38°26.48'S, 145°13.03'E, 23 m, 25 Nov 1973, NMV J1014 (1 female, 10.5 mm; 1 immature male, 8 mm); 38°21.39'S, 145°14.03'E, 16 m, 25 Mar 1965, NMV J1011 (1 male, 8.5 mm; 1 immature male, 7 mm). 9.5 km SW of Port Albert, 38°44.0'S, 146°37.0'E, 9 m, 22 Nov 1983, NMV J12580 (1 female, 10.5 mm). **Tas.** Central Bass Strait, 40°31.1'S, 145°04.0'E, 29 m, 3 Nov 1980, NMV J8841 (2 females, 10–11 mm; 1 immature male, 8 mm).

Description of female. Head with a dorsal elevation between the eyes; anterolateral margins angular; rostral point present; lateral margin of head and pereonite 1 not incised. Pereonite 1 with small dorsal elevation. Pereonites 2 and 3 progressively wider, with small dorsal elevations, with small anterolateral extensions present. Pereonite 4 about 6 times as long as pereonite 3; with a dorsal elevation at third length and an elevation on the posterior dorsal margin, anterior anterolateral margins rounded and extended, widest anteriorly. Pereonites 5–7 progressively shorter posteriorly, without dorsal elevations. Pleon length greater than combined lengths of pereonites 5–7; without dorsal elevations, with small lateral wings, tapered to a narrow rounded apex.

Eyes large and round. Antenna 1 reaching to the end of the second peduncular article of antenna 2; aesthetascs present distally and laterally on flagellum. Antenna 2 slender, more than half as long as body; flagellum of 3 articles ending with claw, with 2 rows of scales along full length.

Maxilla 1 mesial lobe with 3 terminal setae; lateral lobe with 12 distal robust setae. Maxilla 2 mesial lobe with 20 plumose setae, middle lobe with 4 setae, lateral lobe with 3 setae. Maxillipedal endite with 8 mesial setae; 1 coupling hook; palp article 2 with mesial setal rows, articles 3 and 4 with mesial and lateral setal rows, article 5 with mesial and distal setae.

Pereopod 1 propodus as long as carpus; dactylus slightly longer than wide, without unguis. Pereopods 2–4 with small dactylus. Pereopods 5–7 dactylus not denticulate, with unguis and secondary unguis; secondary unguis half length of primary unguis. Uropodal exopod with 2 setae of unequal length. Oostegite 4 with sutured small posterior lobe.

6.5–11 mm.

Male. Head and pereonite 1 similar to female. Pereonites 2 and 3 without dorsal elevations. Pereonite 4 about 11 times as long as pereonite 3, constricted for the first quarter length, with a posterodorsal curved elevation. Pereonites 5–7 progressively shorter posteriorly, without dorsal elevations. Pleon length greater than combined lengths of pereonite 5–7, with a pair of small dorsal elevations, with lateral wings, tapering to a narrow rounded apex.

Antennae, mouthparts, pereopods and uropods as for female.

Pleopod 1 exopod with lateral notch and 2 plumose lateral setae of equal length. Pleopod 2 appendix masculina with ridge on posterior face, with tufts of fine setae at three-quarters length, curved, extending quarter length past endopod, apex simple. Penial plate proximally widened, straight, apex simple.

6.0–10.5 mm.

Distribution. Australia: Victoria, Tasmania; subtidal to 115 m depth.

Remarks. This species was briefly described by Guiler (1949) along with three others from the same locality that are synonymous. The similarity between Guiler's specimens, two of *A. inaequispinosa* and one of each of the others, was first correctly noted by Lew Ton (unpublished) who attributed the alleged specific differences to uneven mounting and illustrations of the material, and incorrect differentiation of males, females and juveniles. The large dorsal elevation between the eyes and the lack of an incision in the groove between the head and pereonite 1 most easily distinguishes *N. inaequispinosa* from other species of *Neastacilla*. Also, the shape of the pleotelson, the dorsal elevations on pereonites 1–4 of the female and the posterior dorsal elevation on pereonite 4 of both males and females are key characteristics.

Neastacilla kanowna sp. nov.

Figures 9–11

Material examined. Holotype. Australia: Vic., Oberon Bay, 39°04.2'S, 146°19.4'E, 21 m, 5 Feb 1982, NMV J3418 (1 female, 14 mm).

Paratypes. Australia: **Vic.** type locality, NMV J3213 (2 females, 15–16 mm; 2 males, 13.5–15 mm), NMV J3214 (1 male, 14 mm), NMV J40679 (1 male, 10.5 mm), NMV J40680 (6 females, 13–15 mm; 7 males, 11–15.5 mm; 2 immature females, 9.0–9.5 mm; 1 immature male, 11 mm). Swan Bay, 38°14.0'S, 144°39.0'E, 4 m, 26 Feb 1991, NMV J20908 (1 female, 13 mm). Eastern Bass Strait, 38°15.0'S, 147°22.5'E, 16 m, 31 Jul 1983, NMV J8820 (1 female, 13.5 mm; 1

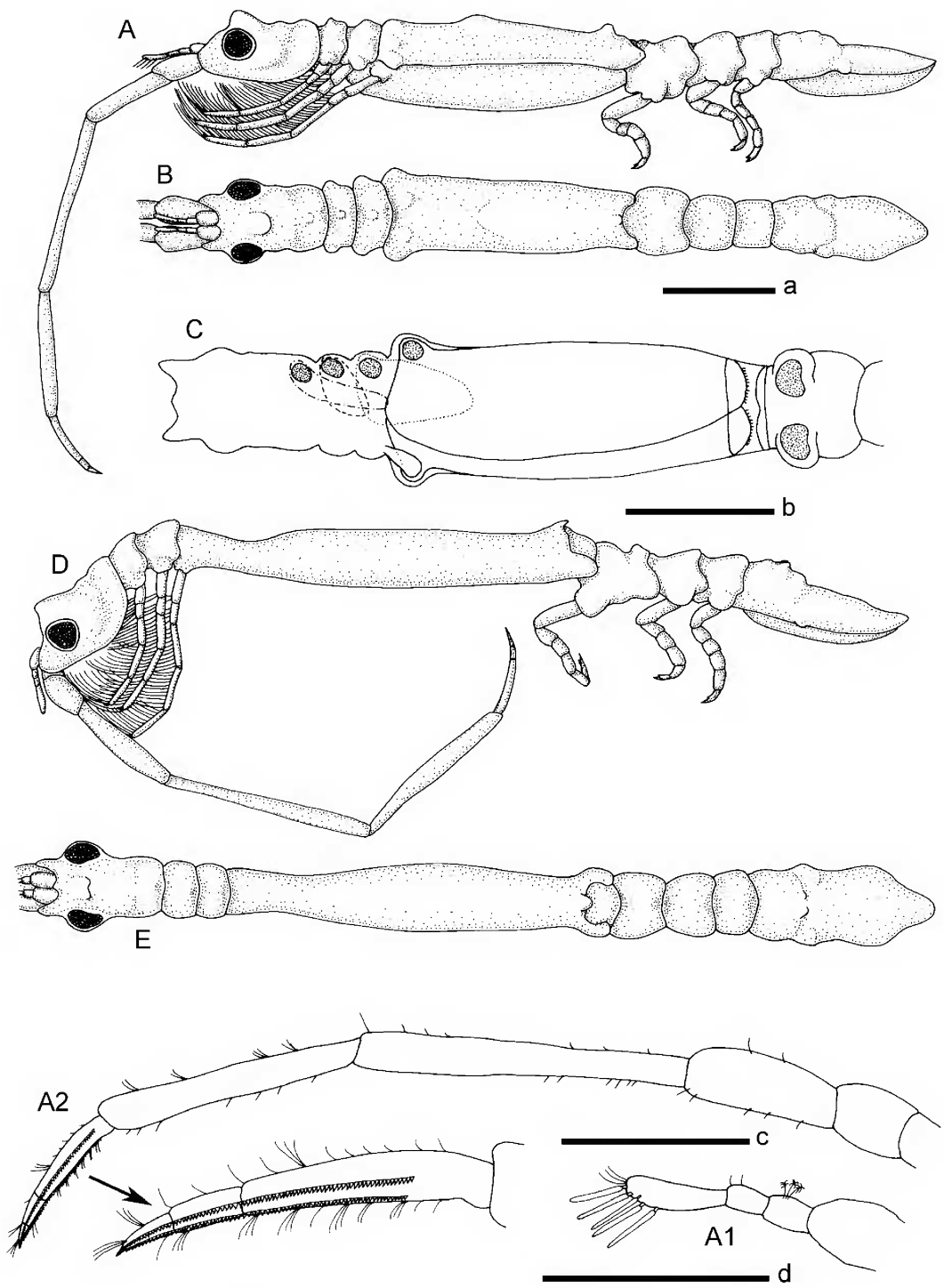

Figure 7. *Neastacilla inaequispinosa* (Guiler, 1949), female (NMV J39217): A, lateral view; B dorsal view; C, ventral view with oostegites; A1, A2. Male (NMV J40691): D, lateral view; E, ventral view. Scales: a (A, B) = 1 mm; b (C) = 1.0 mm; c (A2) = 1.0 mm; d (A1) = 0.5 mm.

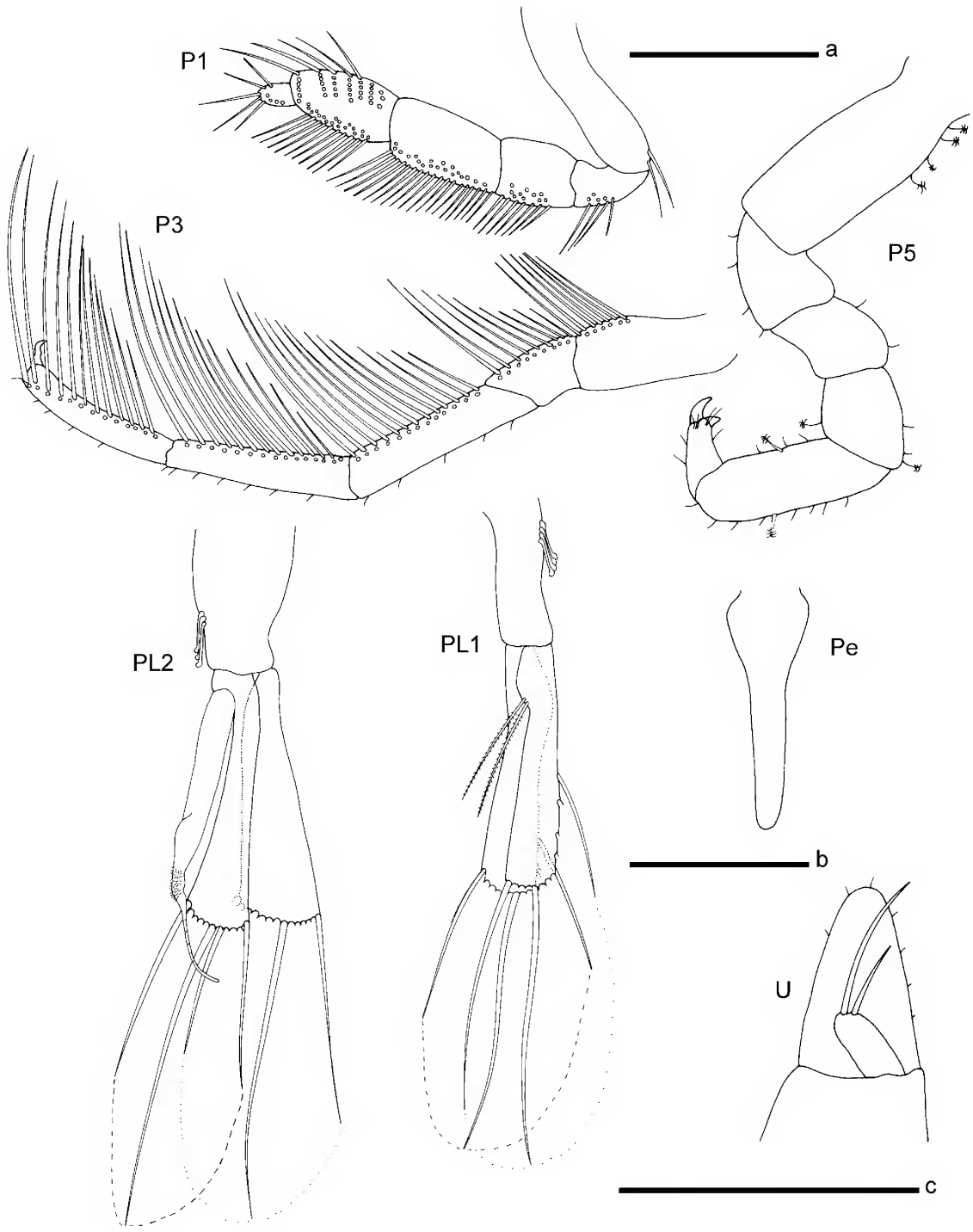

Figure 8. *Neastacilla inaequispinosa* (Guiler, 1949), female (NMV J39217): P1, P3, P5, U. Male (NMV J40691): PL1, PL2, Pe. Scales: a (P1, P3) = 0.5 mm; b (PL1, PL2, Pe) = 0.5 mm; c (U) = 0.5 mm.

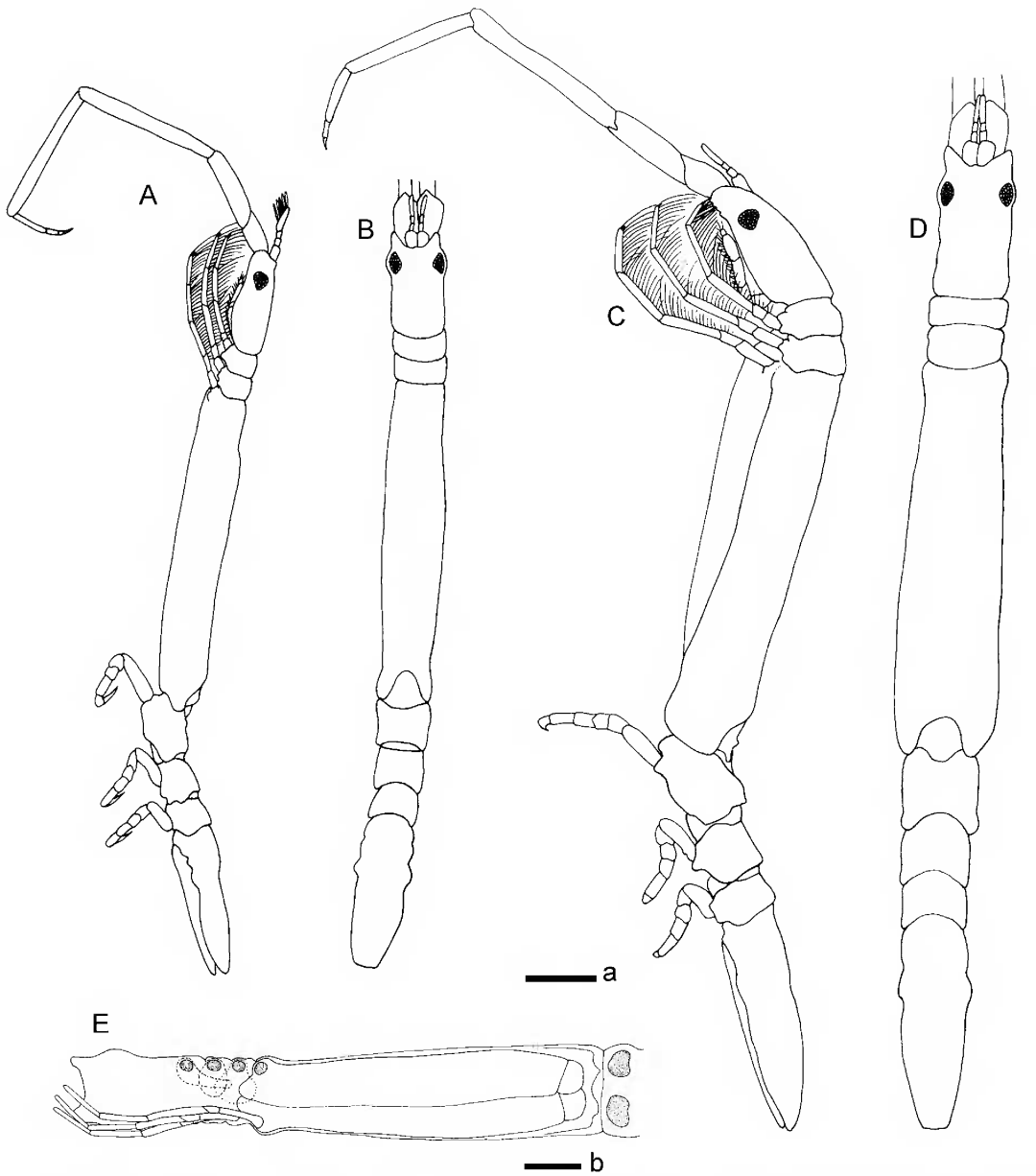

Figure 9. *Neastacilla kanowna* sp. nov., female holotype (NMV J3418): A, lateral view; B, dorsal view; E, ventral view with oostegites. Male (NMV J40679): C, lateral view; D, dorsal view. Scales = a (A–D) = 1.0 mm; b (E) = 1.0 mm.

male, 11 mm; 1 immature female, 10 mm; 1 immature male stage 1, 7.5 mm). **Tas.** Central Bass Strait, off Three Hummock I., 40°31.1'S, 145°04.0'E, 29 m, 3 Nov 1980, NMV J8819 (1 male, 15.5 mm). **SA.** Flinders I., 33°40.50'S, 134°22.0'E, 20 m, 19 Apr 1985, NMV J16578 (1 male, 15 mm).

Description of female. Head without dorsal elevation, anterolateral lobes rounded, small rostral point present; lateral margin of the head and pereonite 1 not incised. Pereonite 1without anterolateral expansion. Pereonites 2 and 3 similar width, without dorsal elevations, without lateral extensions. Pereonite 4 about 9 times as long as pereonite 3, without dorsal elevations, small anterolateral extensions present, slightly wider than pereonites 2 and 3. Pereonites 5–7 progressively shorter posteriorly, without dorsal elevations. Pleon length greater than combined lengths of pereonites 5–7, without dorsal elevations, with small proximal lateral wings, apex truncated.

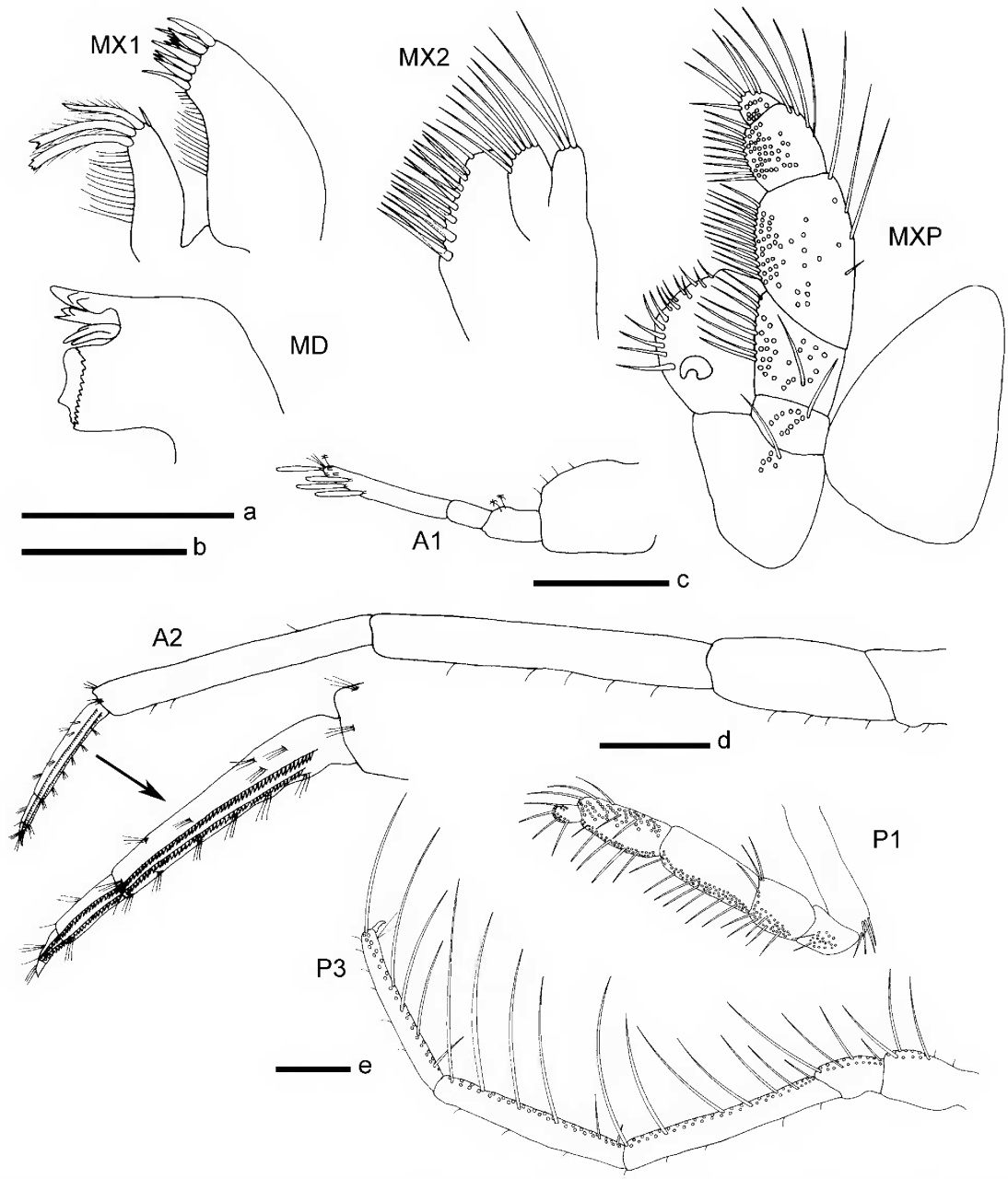

Figure 10. *Neastacilla kanowna* sp. nov., female holotype (NMV J3418): left MXP, MX1, MX2, MD, A1, A2, P1, P3. Scales: a (MX1, MX2, MD) = 0.5 mm; b (MXP) = 0.5 mm; c (A1) = 0.5 mm; d (A2) = 0.5 mm; e (P1, P3) = 0.5 mm)

Eyes small and subtriangular. Antenna 1 reaching to the distal edge of the second peduncular article of antenna 2; aesthetascs present distally and laterally on flagellum. Antenna 2 slender, more than half as long as body; flagellum of 3 articles plus claw, with 2 rows of scales along full length.

Maxilla 1 mesial lobe with 3 terminal setae; lateral lobe with 11 robust setae. Maxilla 2 mesial lobe with 22 setae; middle lobe with 7 setae; lateral lobe with 3 setae. Maxillipedal endite with 14 mesial setae; 1 coupling hook; palp article 2 with mesial setal rows; article 3 with mesial setal and lateral setal

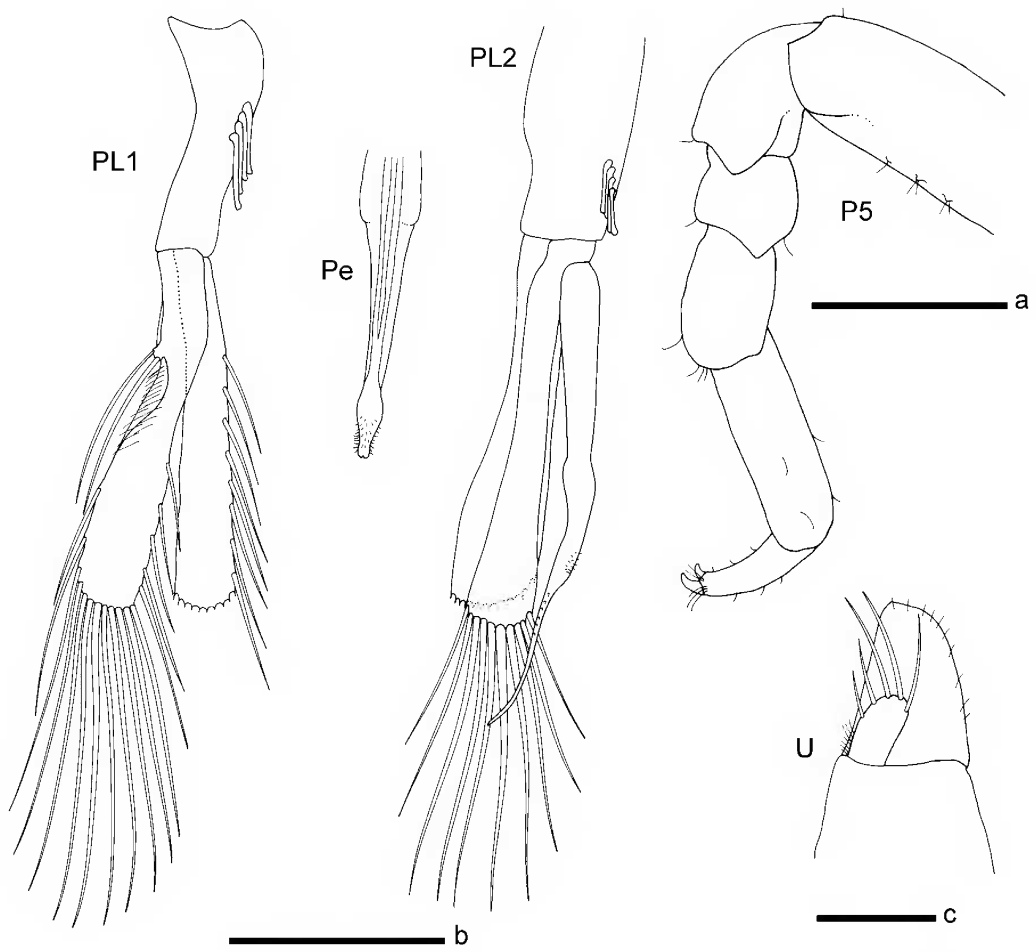

Figure 11. *Neastacilla kanowna* sp. nov., female holotype (NMV J3418): U. Male (NMV J40679): PL1, PL2, Pe. Scales: a (P5) = 0.5 mm; b (PL1, PL2, Pe) = 0.5 mm; c (U) = 0.25 mm.

rows; articles 4 and 5 with mesial and lateral setal rows; article 5 with mesial and distal setae.

Pereopod 1 propodus shorter than carpus; dactylus almost twice as long as wide, without unguis. Pereopods 2–4 with dactylus. Pereopods 5–7 dactylus not denticulate, with unguis and secondary unguis; secondary unguis greater than half length of primary unguis. Uropod exopod with 5 setae. Oostegite 4 with sutured small posterior lobe.

10–16 mm.

Male. Smaller than female but similar morphologically. Pereonites, mouthparts, pereopods all as for female.

Pleopod 1 exopod with lateral notch and 2 plumose lateral setae of equal lengths. Pleopod 2 appendix masculina with ridge on posterior face, with fine setae, curved, and extending quarter length past endopod, apex simple. Penial plate widened proximally, distally bulbous with fine setae, apex with shallow notch.

7.5–15 mm.

Distribution. Australia: Victoria, Tasmania, South Australia; subtidal.

Etymology. "Kanowna" is an Australian Aboriginal name for the sea.

Remarks. This species is most easily distinguished from all other species of *Neastacilla* by its large adult size (around 15 mm), unornamented body and truncate pleotelson. The presence of five setae on the uropodal exopod distinguishes this species from all other Australian species of *Neastacilla*, which generally have two or three apical setae.

Neastacilla lawadi sp. nov.

Figures 12–13

Material examined. Holotype. Australia: WA, between Dampier and Port Hedland, 19°48.8'S, 117°52.2'E, 52 m, 2 Sep 1983, NMV J16933 (1 female, 8 mm).

Paratypes Australia: **NT.** Oxley Island, (W side), 11°00.0'S, 132°49.0'E, 14 m, 21 Oct 1982, NMV J16580 (2 females, 5 mm). NT, station unknown, Oct 1982, NMV J16581 (1 female, 9 mm; 1 male, 6 mm). **SA.** upper Spencer Gulf, NMV J16614 (1 female, 7.5 mm); E of Lowly Point, 33°00.0'S, 137°49.5'E, 18 m, Feb 1986, NMV J16610 (1 female, 7.5 mm); N of Fairway Bank, 33°02.4'S, 137°45.0'E, 18 m, Feb 1986, J16611 (1 female, 8 mm). **WA.** Between Dampier and Port Hedland, 19°37.00'S, 118°53.00'E, 30 m, 3 Jun 1983, NMV J16634 (1 male, 5.5 mm); 19°05.82S, 118°56.7'E, 82 m, 14 Feb 1983, NMV J16669 (3 females, 7.5–8.5 mm; damaged juvenile 5.5 mm; manca 1 3.5 mm); 19°48.8'S, 117°52.2'E, 52 m, 2 Sep 1983, NMV J16660 (1 female 7.5 mm); 19°29.0'S, 118°53.2'E, 40 m, 12 Feb 1983, NMV 16931 (1 female 7.5 mm); 19°37.0'S, 118°53.0'E, 30 m, 3 Jun 1983, NMV 16634 (3 mature females, 5–6.5 mm; 2 immature females, 5 mm; 1 male, 5 mm).

Description of female. Head with 2 large dorsal elevations and 2 small elevations posteriorly; anterolateral margins angular; rostral point present; lateral margin of head and pereonite 1 not incised. Head and pereonite 1 extended anterolaterally. Pereonite 1 with small paired tuberculate dorsal elevations. Pereonites 2 and 3 with small paired tuberculate dorsal elevations and lateral tuberculate elevations, small lateral extensions present. Pereonite 4 about 9 times as long as pereonite 3, with dorsal and dorsolateral tuberculate elevations anteriorly, large paired dorsal elevations midlength, anterolateral margins rounded and extended. Pereonites 5–7 progressively smaller posteriorly, with some dorsal tuberculation. Pleon length greater than combined lengths of pereonites 5–7, with 2 sets of lateral wings, apex subacute.

Eyes small and suboval. Antenna 1 extending to midlength of third peduncular article of antenna 2; aesthetascs present distally on flagellum. Antenna 2 slender, more than half as long as body; flagellum of 2 articles ending with a claw, with row of scales along full length.

Maxilla 1 with 3 terminal setae; lateral lobe with 10 distal robust setae. Maxilla 2 mesial lobe with 22 plumose setae, middle lobe with 3 setae, lateral lobe with 3 setae. Maxillipedal endite with 12 mesial setae; 1 coupling hook; palp article 2 with mesial setal rows, articles 3 and 4 with mesial and lateral setal rows, article 5 with distal setae.

Pereopod 1 propodus slightly shorter than carpus; dactylus longer than wide, without unguis. Pereopods 2–4 with small dactylus. Pereopods 5–7 dactylus not denticulate, with unguis and secondary unguis; secondary unguis setiform and slender and only slightly smaller than primary unguis. Uropodal exopod with 2 setae of equal length. Oostegite 4 with a sutured small posterior lobe.

5–9 mm.

Male. Ornamentation not as pronounced as for female. Head with slight elevation and pereonites 1 to 3 with some tuberculation. Pereonite 4 about 10 times as long as pereonite 3; without dorsal elevations except for posterodorsal curved elevation. Pereonites 5–7 progressively smaller; pereonite 5 with a dorsal curved elevation; pereonites 6 and 7 without dorsal elevations. Pleon longer than combined lengths of pereonites 5–7, with 2 sets of lateral wings, apex subacute.

Antennae, mouthparts, pereopods and uropods as for female.

Pleopod 1 exopod with lateral notch and 2 plumose setae of unequal length. Pleopod 2 appendix masculina with ridge on posterior face, curved, extending third length past endopod, apex simple. Penial plate widened proximally, distally tapered, apex simple.

5–7 mm.

Distribution. Australia: Western Australia, Northern Territory, South Australia; subtidal to 82 m depth.

Etymology. "Lawadi" is an Australian Aboriginal word in the Gooniyandi dialect from north-western Australia where this species was first collected. It means "shoulder" and refers to the rounded anterolateral extensions on pereonite 4 of the female.

Remarks. This species resembles *Neastacilla attenuata* Hale, 1946 from New South Wales and the eastern coasts of Australia. However, the shape of the head is the most obvious difference between the two. *N. lawadi* sp. nov. does not have a lateral incision between the head and pereonite 1 and the head is more ventrally expanded and more sculptured. The third peduncular article of antenna 2 in *N. lawadi* sp. nov. is not thickened as in *N. attenuata.* The pleotelson of *N. lawadi* sp. nov. has a posterior dorsal elevation and more pronounced lateral wings. *Neastacilla attenuata* has a slender pleotelson with no elevation and is slightly turned up at the end.

Neastacilla levis (Thomson and Anderton)

Figures 14–15

Astacilla levis Thomson and Anderton, 1921: 114–115, text-fig.—Hurley, 1957: 13–15, figs 50–66.—Hurley, 1961: 264, 281.

Material examined. New Zealand, off the W coast of South Island, 42°25.0'S, 171°06.0'E, 35 m, 5 Mar 1982, NMV J4736 (1 female, 9.5), NMV J40692 (1 female, 10 mm), NMV J40675 (1 male, 9.5 mm).

Description of female. Head without dorsal elevations, anterolateral lobes rounded, rostral point present; lateral margin of head and pereonite 1 incised. Pereonite 1 not extended anterolaterally, with small dorsolateral tuberculate elevations. Pereonite 2 and 3 progressively wider, without dorsal elevations, small lateral extensions present. Pereonite 4 about 7 times as long as pereonite 3; dorsally elevated at first third length, anterolateral margins extended and rounded. Pereonites 5–7 progressively smaller, without dorsal elevations. Pleon length greater than combined lengths of pereonites 5–7, without dorsal elevations, with small lateral wings, apex truncated and notched.

Eyes large and triangular. Antenna 1 extending to the distal edge of second peduncular article of antenna 2; aesthetascs present distally and laterally on flagellum. Antenna 2 slender, more than half as long as body; flagellum of 3 articles ending in a claw, 2 rows of scales along full length.

Maxilla 1 mesial lobe with 3 terminal setae; lateral lobe with 11 distal robust setae. Maxilla 2 mesial lobe with 14 plumose

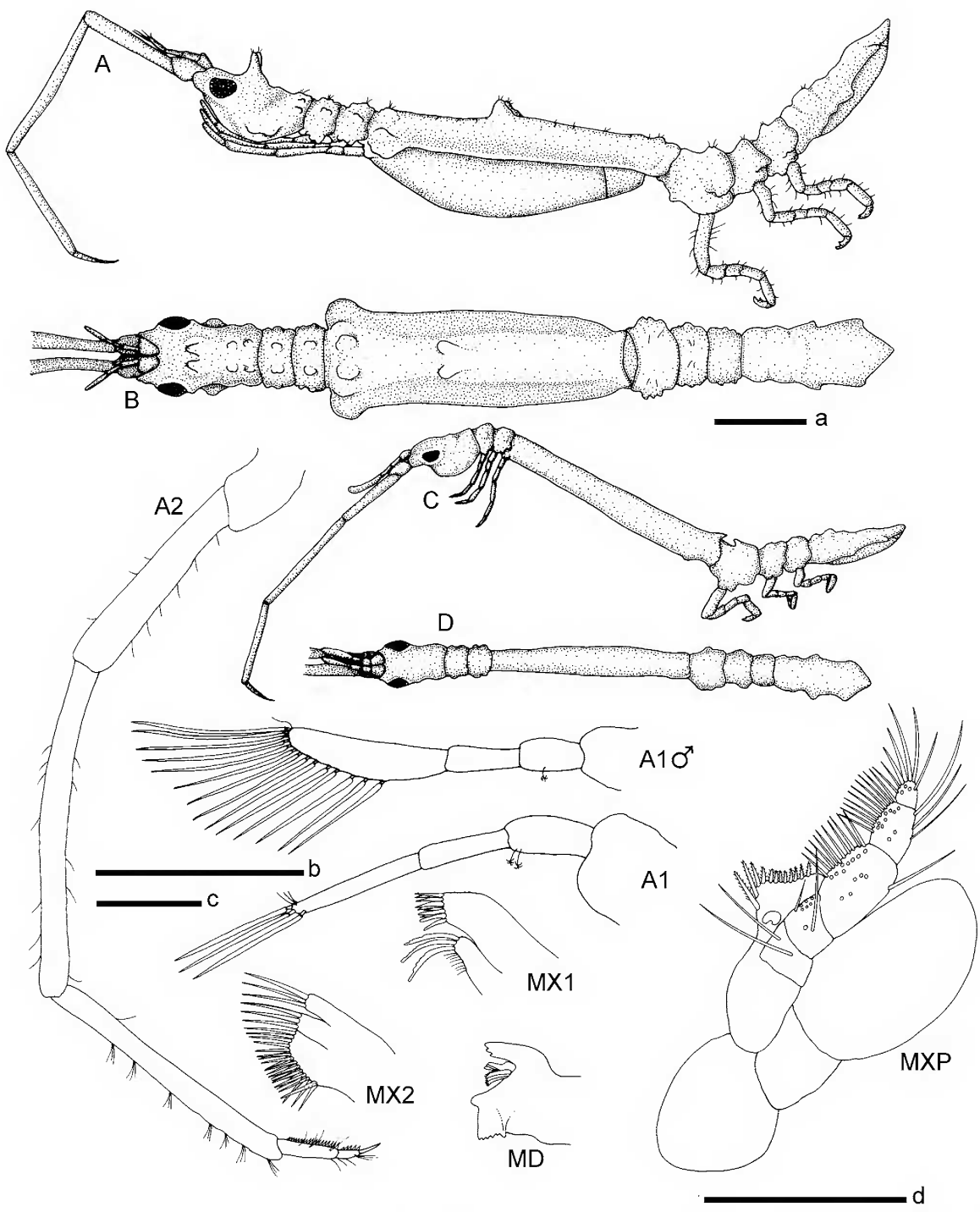

Figure 12. *Neastacilla lawadi* sp. nov., female holotype (NMV J16933): A, lateral view; B, dorsal view; A1, A2, left MXP, MX1, MX2, MD. Male (NMV J16634): C, ventral view; D, dorsal view; A1♂. Scale: a (A–D) = 1.0 mm; b (A1, A1♂) = 0.5 mm; c (A2) = 1.0 mm; d (MXP, MX1, MX2, MD) = 0.5 mm.

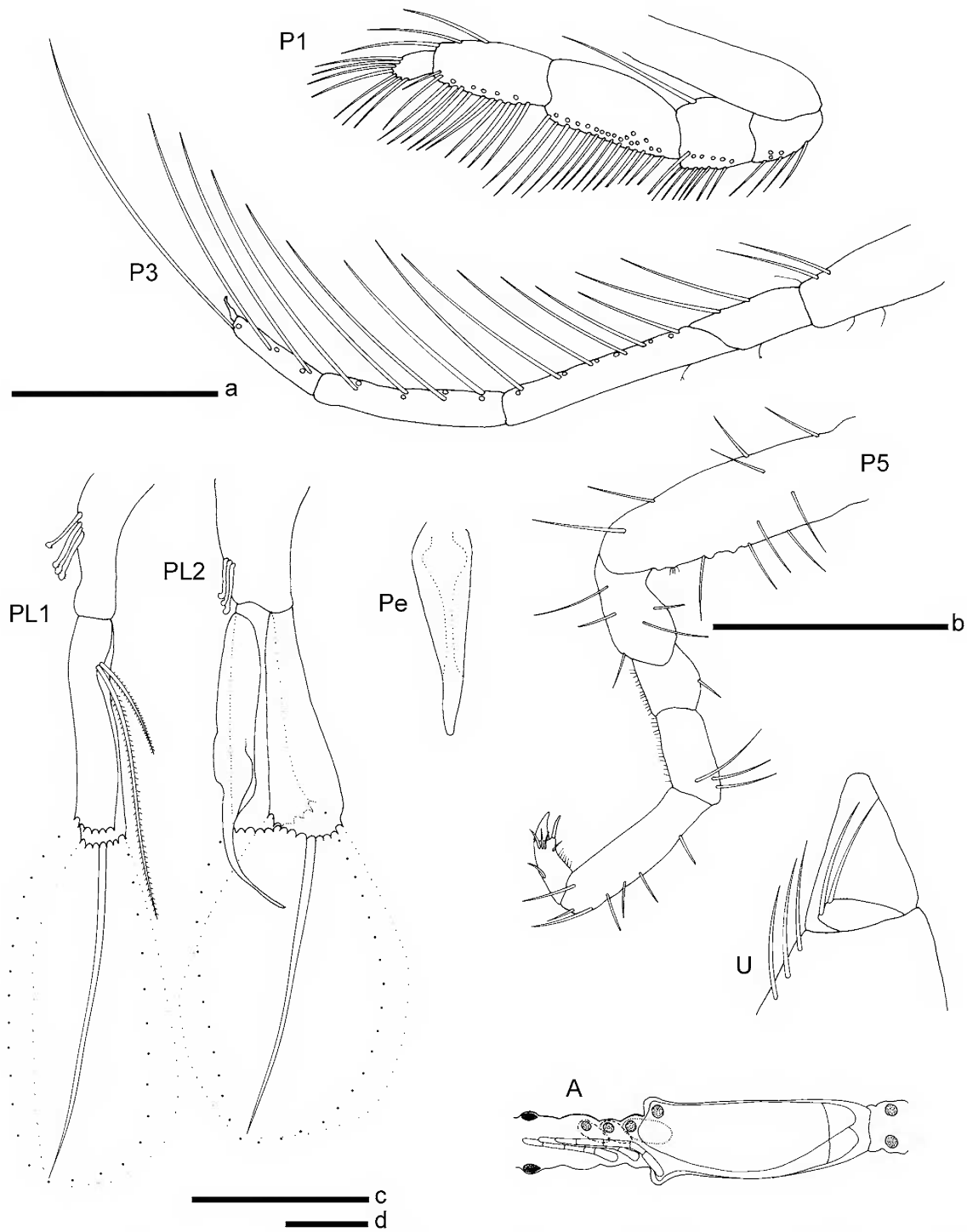

Figure 13. *Neastacilla lawadi* sp. nov., female holotype (NMV J16933): P1, P3, P5, U, A, ventral view. Scales: a (P1, P3) = 0.5 mm; b (P5) = 0.5 mm; c (Pl1, PL2, Pe, U) = 0.5 mm; d (A) = 1.0 mm.

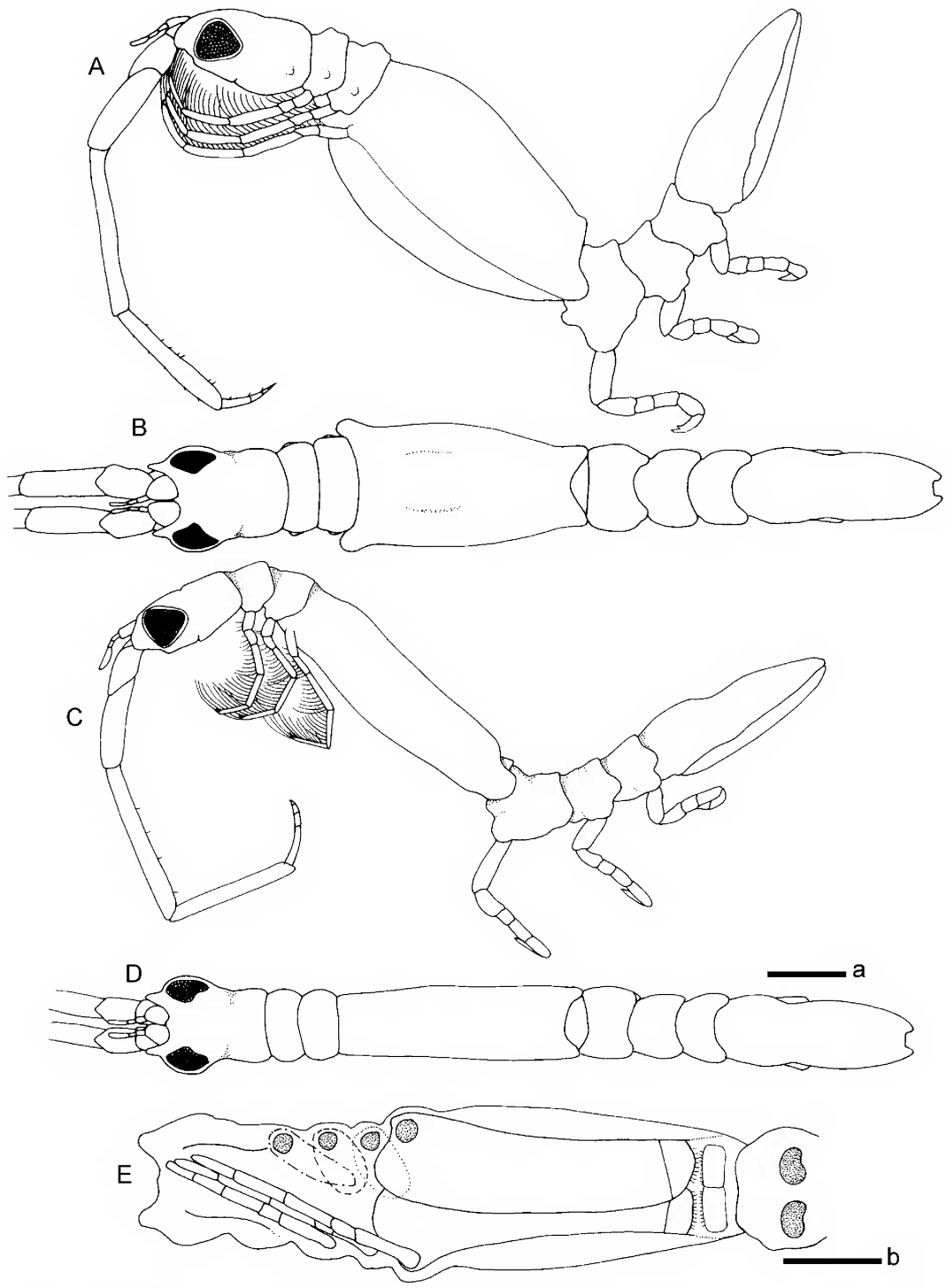

Figure 14. *Neastacilla levis* (Thomson and Anderson, 1921), female (NMV J4736): A, lateral view; B, dorsal view; E, ventral view with oostegites. Male (NMV J40675): C, ventral view; D, dorsal view. Scale: a (A–D) = 1.0 mm; b (E) = 1.0 mm.

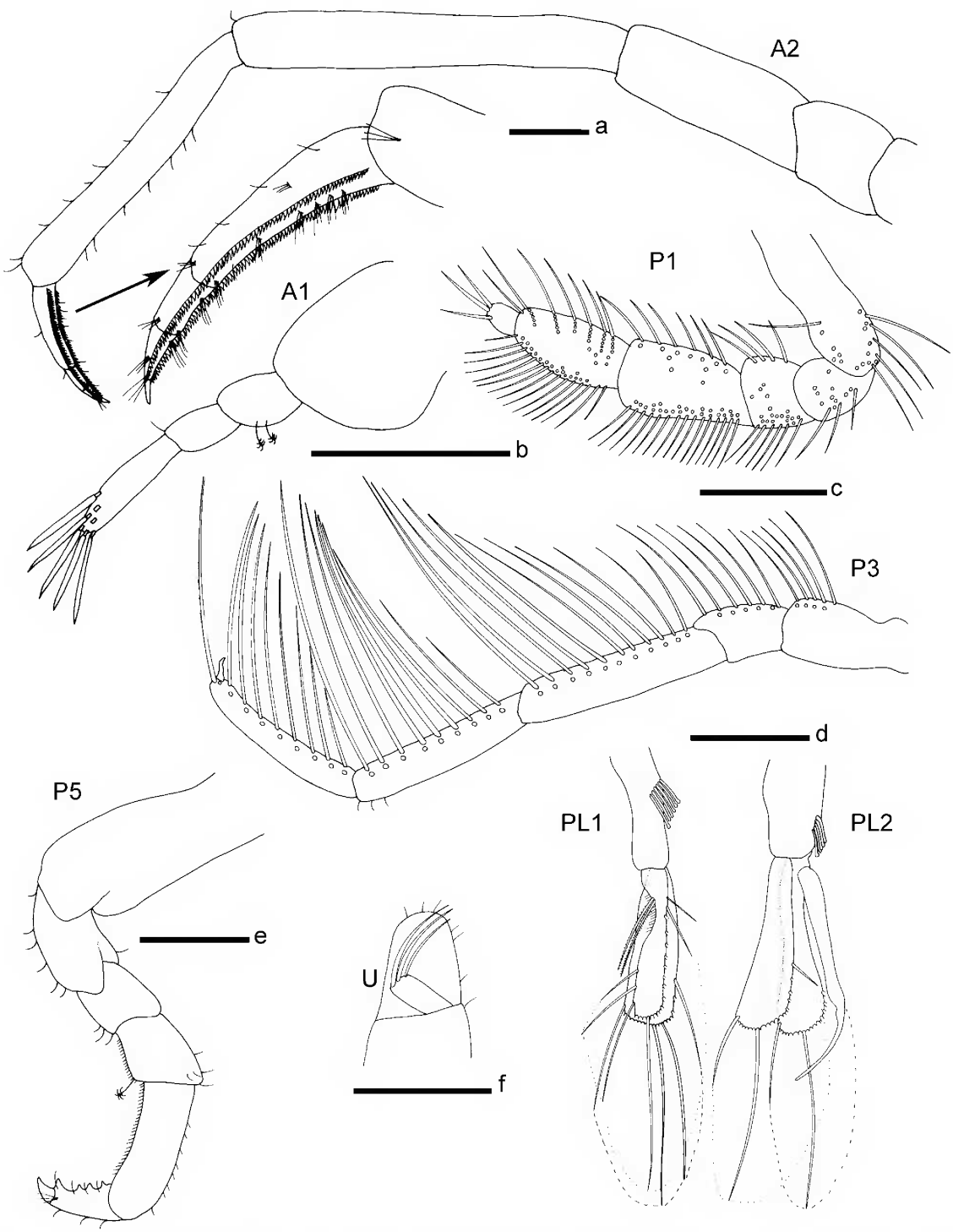

Figure 15. *Neastacilla levis* (Thomson and Anderson, 1921), female (NMV J4736): A1, A2, P1, P3, P5, U. Male (NMV J40675): PL1, PL2, Pe. Scales: a (A2) = 0.5 mm; b (A1) = 0.5 mm; c (P1, P3) = 0.5 mm; d (PL1, PL2) = 0.5 mm; e (P5) = 0.5 mm; f (U) = 0.5 mm.

setae, middle lobe with 5 setae, lateral lobe with 4 setae. Maxillipedal endite with three coupling hooks present; palp article 2 with mesial setal rows, articles 3 and 4 with mesial and lateral setal rows, article 5 with mesial and distal setae.

Pereopod 1 propodus and carpus similar length; dactylus longer than wide, without unguis. Pereopods 2–4 with dactylus. Pereopods 5–7 dactylus with 3 denticulations (see *Remarks*) and setae, with unguis and secondary unguis; secondary unguis about third length of primary unguis. Uropodal exopod with 3 setae of equal length. Oostegite 4 with sutured small posterior lobe.

10–12 mm.

Male. Head ornamentation similar to female. Pereonite 4 about 8 times as long as pereonite 3, without dorsal elevations, anterolateral margins not extended. Pereonites 5–7, Pleon similar to female.

Antennae, mouthparts, pereopods and uropods as for female.

Pleopod 1 exopod with lateral notch and 2 plumose lateral setae of unequal lengths. Pleopod 2 appendix masculina with ridge on posterior face, curved, extending third length past the endopod, apex simple. Penial plate simple and straight.

10–13 mm.

Distribution. New Zealand; subtidal.

Remarks. First described by Thomson and Anderton (1921) as *Astacilla levis*, only a lateral view of the single female specimen taken off Otago Heads was drawn. The description was brief and relatively uninformative. Hurley (1957) provided further description the species from two males and one female taken from Cook Strait, figuring only the male and not describing the male pleopod 1, female oostegites, maxilla 1, maxilla 2 or mandible. The large triangular eye, shape of the head and pereonite 1 and the truncate, notched pleotelson immediately distinguish this species. Hurley (1957) described the denticulation of pereopods 5–7 as "4–5 small corrugations;" three denticulations were found in all specimens examined for this study so this character must be variable.

Neastacilla macilenta (Hale)

Astacilla macilenta Hale, 1946: 179–182, figs 11–12.—Monod, 1970: 1139.

Neastacilla macilenta.—Poore et al., 2002: 259.

Diagnosis of female. Eyes small and round. Head without dorsal elevations; lateral margins of head and pereonite 1 not incised, extended anterolaterally; unsutured lateral groove below eye present. Pereonites 2–3 without dorsal elevations. Pereonite 4 7 times as long as pereonite 3, without dorsal elevations, anterolateral margins extended and angular. Pleon length longer than pereonites 5–7 combined, 2 pairs of lateral wings, apex bluntly rounded. 8 mm.

Male. Similar to female except for pereonite 4, which is 15 times as long as pereonite 3.

Pleopod 1 exopod with lateral notch and 2 plumose lateral setae of unequal lengths. Pleopod 2 appendix masculina with ridge on posterior face, curved, not extending past the endopod, apex simple. Penial plate undescribed. 9 mm.

Distribution. Australia: New South Wales.

Remarks. This species is diagnosed using the description of Hale (1946). This species is superficially similar to *Neastacilla. soelae* sp. nov., *N. monoseta* and *N. deducta*. However, *N. soelae* possesses a distinctive long pointed pleotelson and *N. monoseta* possesses a large, angular lateral wings on the pleotelson. The pleotelson of *N. macilenta* is rounded and blunt. *N. macilenta* can be further distinguished from *N. monoseta* and *N. deducta* by the absence of an incision in the suture line between the head and pereonite 1.

Hale (1946) illustrated three lateral plumose setae on the exopod of pleopod 1 in males. In all specimens examined here, there were two lateral plumose setae.

Neastacilla marrimarri sp. nov.

Figures 16–17

Material examined. Holotype. Australia: WA, King George Sound, 35°00.7'S, 118°10.1'E, 25 m, 15 Apr 1984, NMV J16641 (1 female, 6.4 mm).

Description of female. Head with 2 dorsal elevations between eyes, anterolateral margins angular, rostral point absent; lateral margin of head and pereonite 1 not incised. Pereonite 1 with large dorsal elevation and small dorsolateral elevations. Pereonites 2 and 3 with dorsal and dorsolateral elevations, with lateral margins extended. Pereonite 4 about 5 times as long as pereonite 3; with 2 dorsal elevations midlength each with 2 apices, small dorsolateral elevations at midlength, anterior dorsolateral elevations, 2 posterodorsal elevations and 2 posterior dorsolateral elevations, anterolateral margins rounded and extended. Pereonites 5–7 progressively shorter posteriorly, with dorsal and dorsolateral elevations. Pleon similar length to the combined lengths of pereonites 5–7, with 2 sets of lateral wings, apex subacute.

Eyes small and round. Antenna 1 reaching past the second peduncular article of antenna 2; aesthetascs present distally and laterally on flagellum. Antenna 2 slender, more than half as long as body; flagellum of 3 articles ending with claw; with 2 rows of scales along full length.

Maxilla 1mesial lobe with 3 terminal setae; lateral lobe with 9 distal robust setae. Maxilla 2 mesial lobe with 15 plumose setae, middle lobe with 3 setae, lateral lobe with 3 setae. Maxillipedal endite with 8 mesial setae; 1 coupling hook; palp article 2 with mesial setal rows, articles 3 and 4 with mesial and lateral setal rows, article 5 with distal setae.

Pereopod 1 propodus and carpus of a similar length; dactylus longer than wide; without unguis. Pereopods 2–4 with small dactylus. Pereopods 5–7 dactylus denticulate, with unguis and secondary unguis; secondary unguis half size of primary unguis. Uropodal exopod with 2 setae of equal length. Oostegite 4 with a sutured small posterior lobe.

6.4 mm.

Male. Unknown

Distribution. Australia: Western Australia; subtidal.

Etymology. "Marrimarri" is an Australian Aboriginal word in the Nyungar dialect from south-western Australia where this specimen was found. It means "crustacean" or "crab".

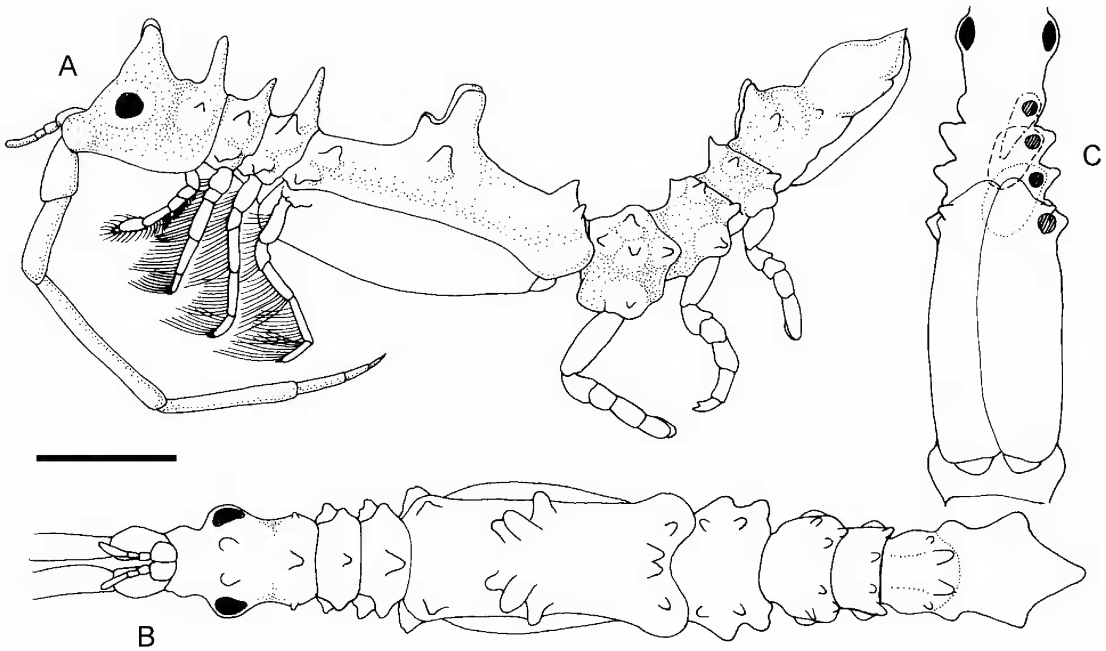

Figure 16. *Neastacilla marrimarri* sp. nov., female holotype (NMV J16641): A, lateral view; B, dorsal view; C, ventral view with oostegites, Scale = 1.0 mm.

Remarks. Even though this species is known only from a single female specimen, it is sufficiently distinct to warrant a new species. Superficially this species resembles *Neastacilla tuberculata* from New Zealand and *N. sheardi* from southern Australia. However, in *N. marrimarri* sp. nov. the dorsal elevation of pereonite 4 is not as pronounced and the lateral margins not expanded to as great an extent as they are in *N. tuberculata*. The ornamentation of pereonite 4 is also arranged differently. *Neastacilla sheardi* has less ornamentation than *N. marrimarri*. Further, the pleotelson of *N. marrimarri* is more narrow, than in *N. tuberculata* and more angular than that of *N. sheardi*.

Neastacilla monoseta (Guiler)

Figures 18–20

Astacilla monoseta Guiler, 1949: 47–49, figs 1, 2.—Guiler, 1952: 24.—Monod, 1970: 1139–1140.

Neastacilla monoseta.—Poore et al., 2002: 259.

Material examined. Australia: **Vic.** Western Port, 38°21.48'S, 145°13.85'E, 15 m, 30 Mar 1965, NMV J1022 (1 female, 10 mm); 38°22.0'S, 145°32.0'E, NMV J1027 (1 female, 15.5 mm; 7 manca 1 individuals), NMV J1028 (1 female, 15 mm); 38°20.67'S, 145°14.74'E, 9 m, 4 Mar 1965, NMV J1018 (immature male, 8 mm); 38°21.0'S, 145°14.0'E, 8 m, 12 Oct 1964, NMV J1017 (1 male, 15 mm; 1 immature male 9 mm); 38°21.39'S, 145°14.03'E, 16 m, 25 Mar 1965, NMV J1023 (1 male, 15.5 mm); 38°21.17'S, 145°14.0'E, 18 m, 29 Mar 1965, NMV J1024 (immature female, 11 mm). Portsea, 38°19.0'S, 144°43.0'E, NMV J1029 (1 female, 17 mm). Bass Strait, 39°01.0'S, 143°22.1'E, 84 m, 31 Jan 1981, NMV J40641 (1 male, 8.5 mm). Eastern Bass Strait,38°18.0'S, 147°37.0'E, 55 m, 31 Jul 1983, NMV J8818 (immature male, 8 mm). Bennison Channel, 38°49.0'S, 146°23.0'E, 6 m, 23 Nov 1983, NMV J12579 (manca 2, 6.5 mm). **Tas.** Central Bass Strait, 39°32.8'S, 144°16.0'E, 18 m, 1 Nov 1980, NMV J8830 (1 female, 13 mm).

Description of female. Head without dorsal elevations, anterolateral lobes rounded, rostral point present; lateral margin of head and pereonite 1 incised. Pereonite 1 anterolaterally extended. Pereonites 2 and 3 without dorsal elevations. Pereonite 4 about 11 times length of pereonite 3, wider than pereonites 2 and 3, anterolateral margins extended and angular. Pereonites 5–7 progressively shorter posteriorly, lateral margins not expanded. Pleon length greater than combined lengths of pereonites 5–7, with 2 sets of lateral wings, apex acute.

Eyes small and round. Antenna 1 reaching just past the distal edge of the second peduncular article of antenna 2; aesthetascs present distally and laterally on flagellum. Antenna 2 slender, more than half length of the body; flagellum of 2 articles ending with claw, row of scales along full length.

Maxilla 1 mesial lobe with 3 terminal setae; outer lobe with 10 robust setae. Maxilla 2 mesial lobe with 20 setae; middle lobe with 3 setae; lateral lobe with 3 setae. Maxillipedal endite with 12 mesial setae; 1 coupling hook; palp article 2 with mesial setal rows; article 3 with mesial and lateral setal rows; article 4 with mesial and lateral setal rows; article 5 with mesial and distal setae.

Pereopod 1 propodus and carpus similar length; dactylus almost twice as long as wide, without unguis. Pereopods 2–4 slender, with dactylus. Pereopods 5–7 dactylus not denticulate,

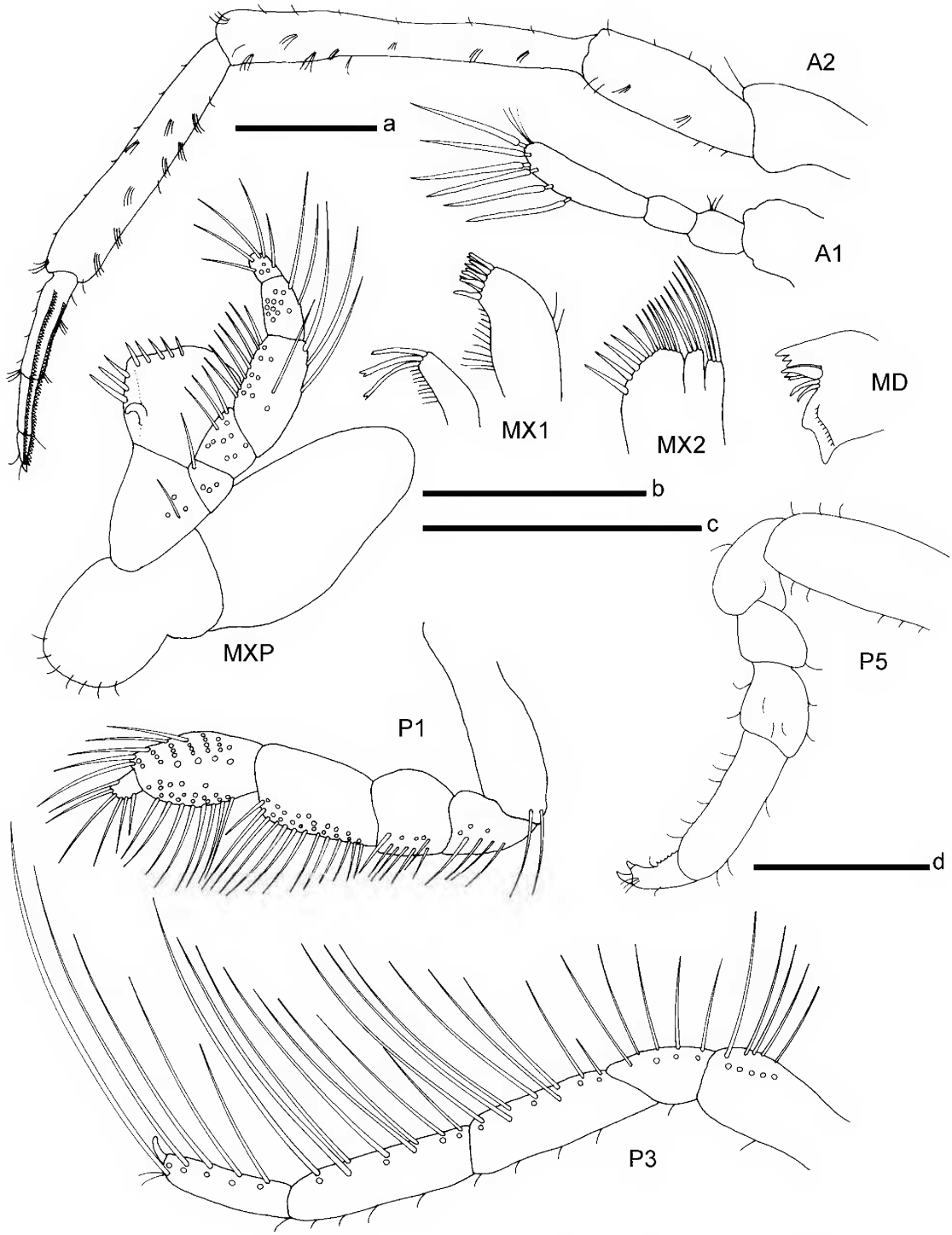

Figure 17. *Neastacilla marrimarri* sp. nov., female holotype (NMV J16641): A1, A2, left MXP, MX1, MX2, MD; P1, P3, P5. Scales: a (A1, A2) = 0.5 mm; b (MP, MX1, MX2, MD, P1) = 0.5 mm; c (P1, P3) = 0.5 mm; d (P5) = 0.5 mm.

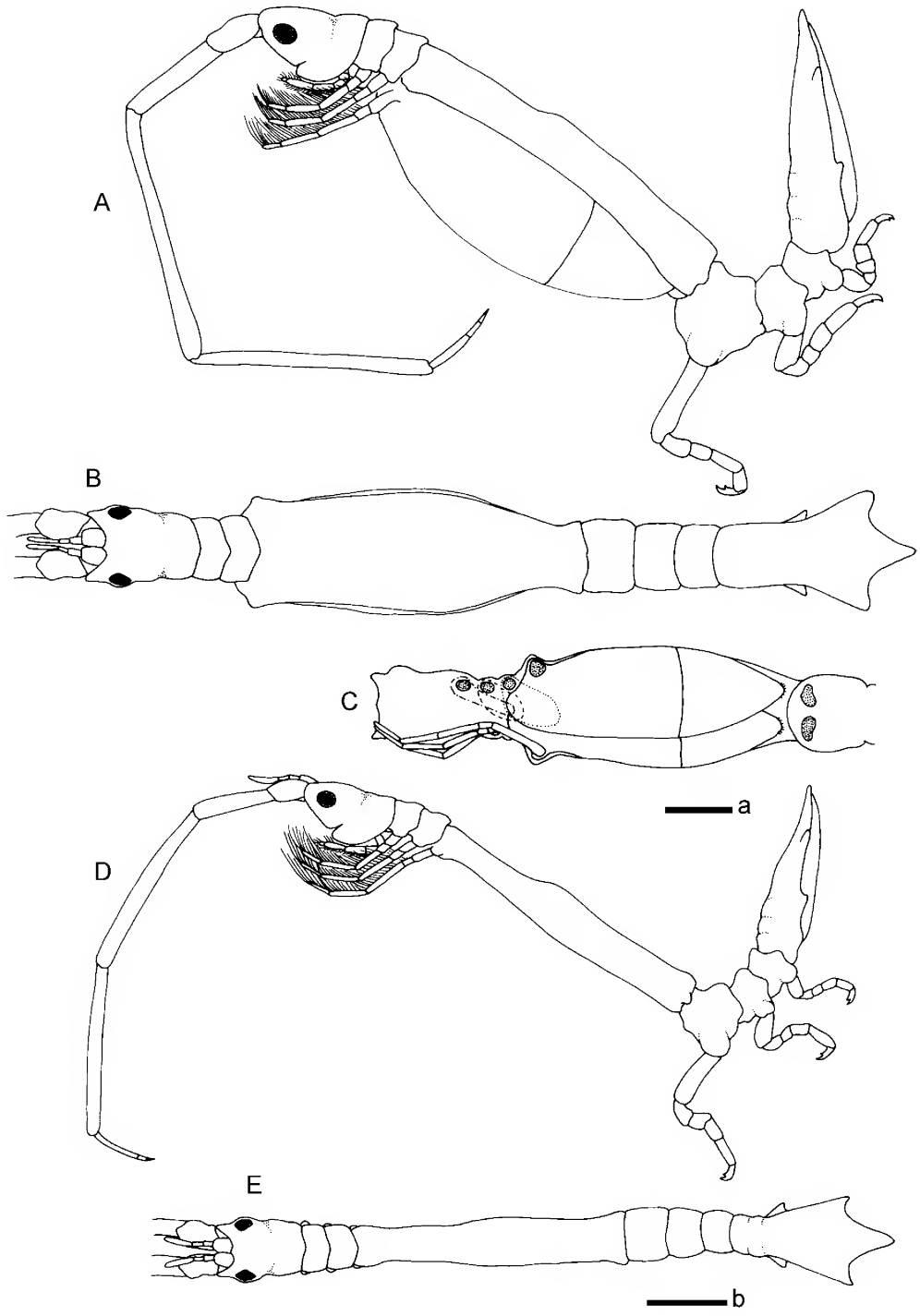

Figure 18. *Neastacilla monoseta* (Guiler, 1949), female (NMV J1022): A, lateral view; B, dorsal view; C, ventral view with oostegites. Male (NMV J40641): D, ventral view; E, dorsal view. Scale: a (A, B, D, E) = 1.0 mm; b (C) = 1.0 mm.

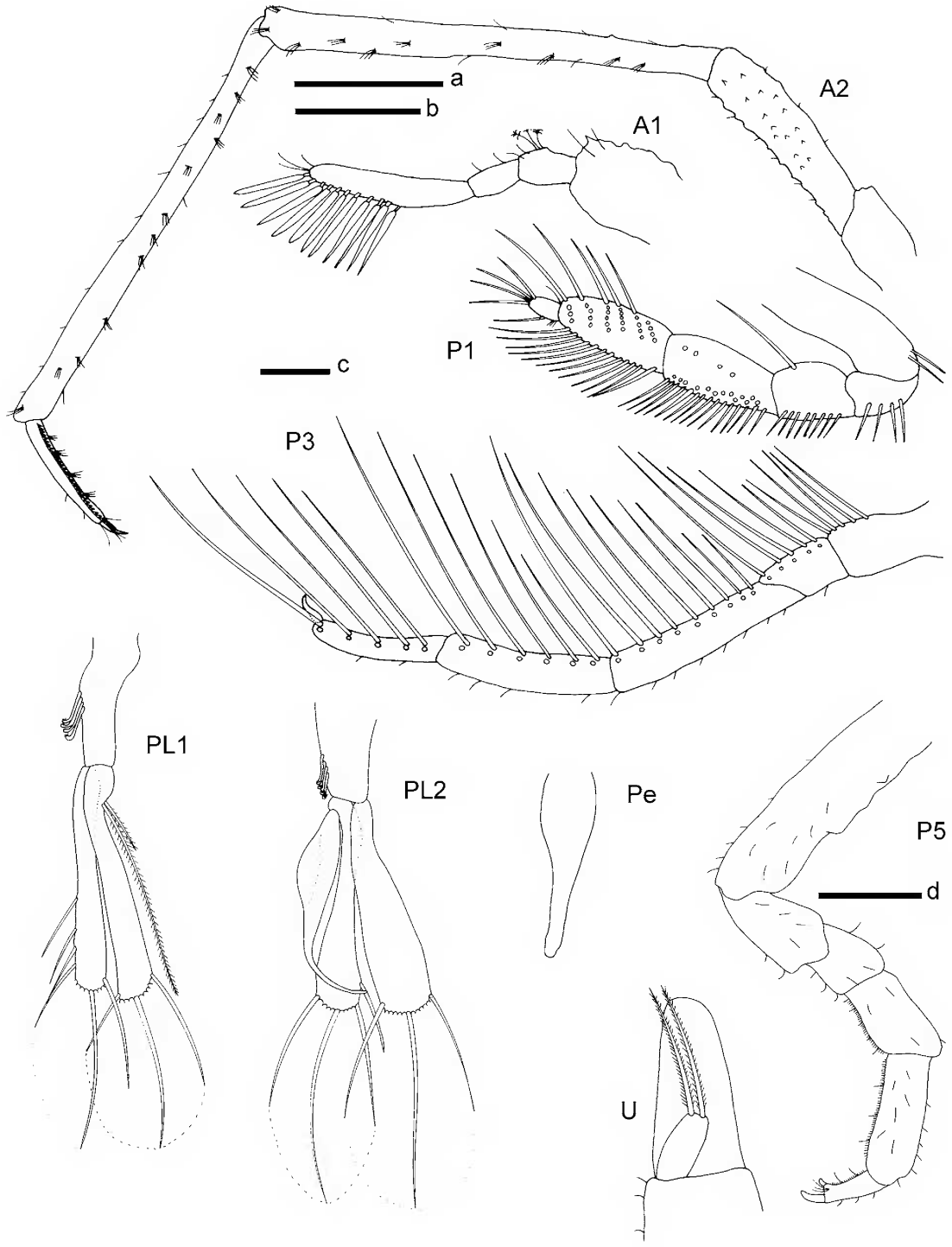

Figure 19. *Neastacilla monoseta* (Guiler, 1949), female (NMV J1022): A1, A2, P1, P3, P5, U. Male (NMV J40641): PL1, PL2, Pe. Scales: a (A1) = 0.5 mm; b (A2) = 1.0 mm; c (P1, P2) = 1.0 mm; d (P5) = 0.5 mm; e (PL1, PL2, Pe, U) = 0.5 mm.

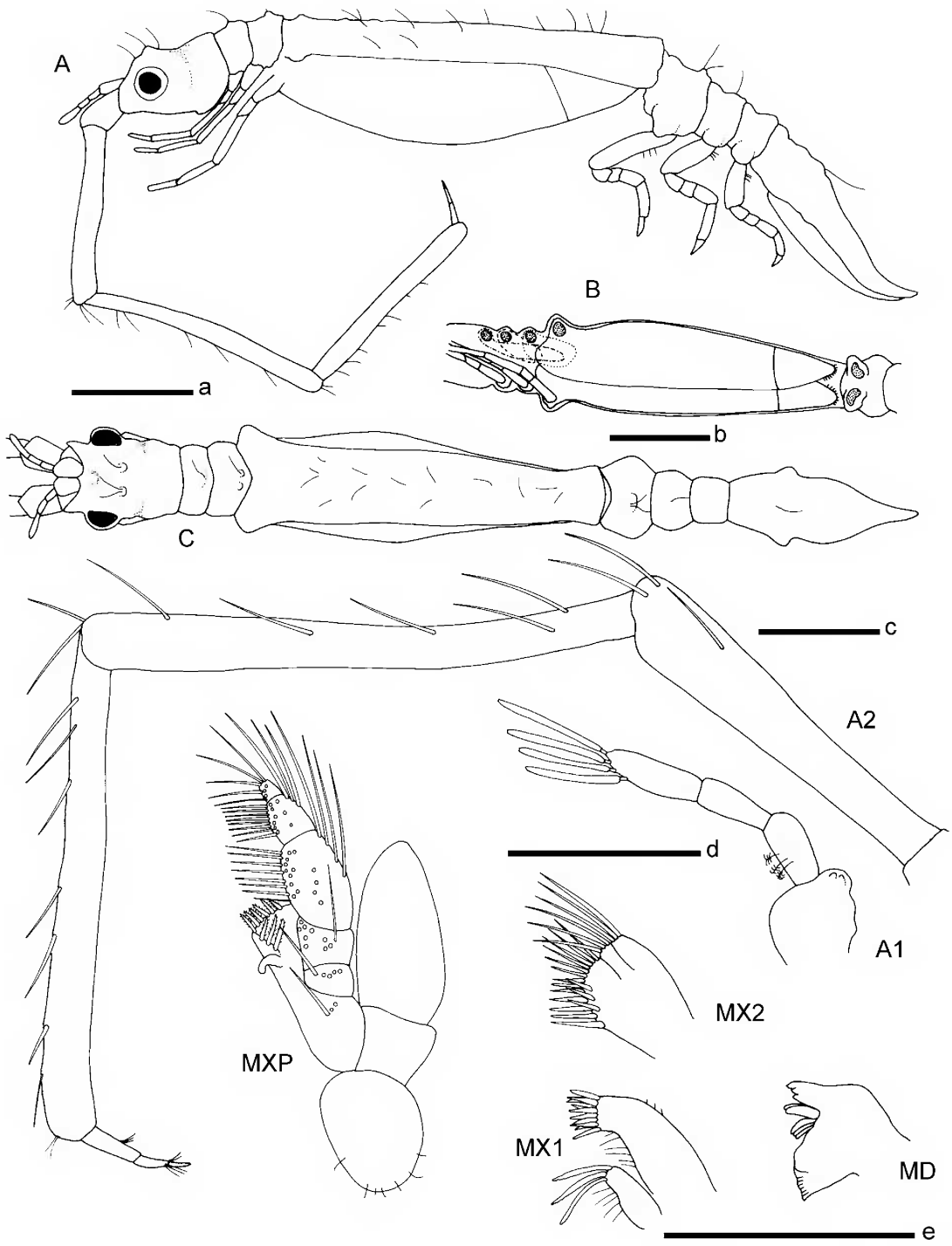

Figure 20. *Neastacilla soelae* sp. nov., female holotype (NMV J16652): A, lateral view; B, dorsal view; C, ventral view with oostegites; A1, A2, left MXP, MX1, MX2, MD. Scale: a (A, C) = 1.0 mm; b (B) = 1.0 mm; c (A2) = 0.5 mm; d (A1) = 1.0 mm; e (MXP, MX1, MX2, MD) = 0.5 mm.

posteriorly; unguis and secondary unguis present; secondary unguis less than half length of primary unguis. Uropod exopod with 2 setae distally. Oostegite 4 with suture at midlength.

11–17 mm.

Male. Pereonites, mouthparts, pereopods as for female.

Pleopod 1 exopod with lateral notch and 2 plumose setae of unequal lengths. Pleopod 2 with appendix masculina with ridge on posterior face, apex simple, curved, not extending past the endopod. Penial plate widened proximally, apex simple.

8–15.5 mm

Distribution. Australia: Victoria, Tasmania; subtidal to 84 m depth.

Discussion. Guiler (1949) called the species '*monoseta*' because he found only one seta on the uropod exopod. This has subsequently been found to have been erroneous and every specimen examined for this redescription had two setae on the uropodal exopod. The best distinguishing characteristic for this species is its possession of an elongate distally acute pleotelson that flares out laterally into two acute wings.

Neastacilla sheardi (Hale)

Astacilla sheardi Hale, 1946: 183–184, fig. 13.
Neastacilla sheardi.—Poore et al., 2002: 259.

Diagnosis of female. Eyes small and subtriangular. Head with dorsal elevation (with 2 apices) slightly posterior to eyes, and small single dorsal elevation posteriorly; lateral margin of head and pereonite 1 not incised. Pereonite 1 with single small dorsal elevation. Pereonites 2–3 dorsally smooth, with small lateral expansions present. Pereonite about six times as long as pereonite 3, with anterolateral expansions, with pair of blunt dorsal elevations at midlength and blunt dorsal elevation posteriorly. Pereonites 5–7 dorsally smooth. Pleon as long as pereonites 5–7 combined, with 2 pairs of lateral wings, apex subacute. 5 mm.

Male. Unknown.

Distribution. Australia: South Australia (Spencer Gulf): subtidal.

Remarks. This species is diagnosed using the description of Hale (1946). believe that Hale's single specimen was an immature female, as the marsupium does not look to be fully formed. The specimen drawn by Hale (1946) is similar to *Neastacilla inaequispinosa* but can be easily distinguished from it by the much broader pleon, the shape and ornamentation of the head and slightly more robust antenna 2. If *N. sheardi* is found to be an immature specimen, on further examination, it may more closely resemble *N. marrimarri* or *N. tuberculata*.

Neastacilla soelae sp. nov.

Figures 20–21

Material examined. Holotype. Australia: WA, between Dampier and Port Hedland, 19°59.3'S, 117°03.6'E, 52 m, 22 Feb 1983, NMV J16652 (1 female, 7 mm).

Paratypes. Australia: **WA.** Between Dampier and Port Hedland, type locality, NMV J16930 (1 female, 8 mm); 19°27.2'S, 118°58.6'E, 36–46 m, 8 Dec 1982, NMV J40681 (1 female, 9 mm); 19°29.7'S, 118°52.2'E, 39 m, 24 Oct 1983, NMV J40682 (1 female, 7.5 mm); 19°56.7'S, 117°53.8'E, 43 m, 26 Aug 1983, NMV J40683 (1 female, 8.5 mm).

Description of female. Head with 2 dorsal elevations between eyes and smaller dorsal elevation anterior to eyes, with setae on elevations, anterolateral lobes angular, rostral point present; lateral margin of head and pereonite 1 not incised, with small flared anterolateral extension. Pereonite 2 with 1 dorsal tuberculate elevation with setae. Pereonite 3 with 2 dorsal elevations with setae. Pereonite 4 about 10 times as long as pereonite 3; with small tuberculate dorsal elevations with dorsal setae along length, anterolateral margins extended and rounded. Pereonites 5–7 with tuberculate elevations with setae. Pleon longer than combined lengths of pereonites 5–7; with small tuberculate dorsal elevations with dorsal setae, with lateral wings, long and tapering, apex acute.

Eyes small and round. Antenna 1 reaching past second peduncular article of antenna 2; aesthetascs present distally and laterally on flagellum. Antenna 2 slender, more than half as long as body; flagellum of 2 articles ending with claw, row of scales undetected.

Maxilla 1 mesial lobe with 3 terminal setae; lateral lobe with 10 distal robust setae. Maxilla 2 mesial lobe with 16 plumose setae, middle lobe with 3 setae, lateral lobe with 3 setae. Maxillipedal endite with 9 mesial setae; 1 coupling hook; palp article 2 with mesial setal rows, articles 3 and 4 with mesial and lateral setal rows, article 5 with mesial and distal setae.

Pereopod 1 propodus slightly shorter than carpus; dactylus longer than wide; without unguis. Pereopods 2–4 without dactylus. Pereopods 5–7 dactylus not denticulate, with unguis and secondary unguis; secondary unguis setiform and slender, only slightly smaller than primary unguis. Uropodal exopod with 2 setae of equal length. Oostegite 4 with a posterior suture.

7–9 mm.

Male. Unknown.

Distribution. Australia: Western Australia; subtidal to 52 m depth.

Etymology. This species is named after the research vessel from which the specimen was collected, RV *Soela*.

Remarks. This species is from a region (north-western Australia) where little is known about the arcturid fauna. The long tapered pleotelson, loss of dactyli on pereopods 2–4 (a state possessed by *N. yuriel* sp. nov.) and the setose secondary dactlyus on pereopods 5–7 (also found in *N. lawadi* sp. nov.) characterise this species.

Neastacilla tarni sp. nov.

Figures 22–24

Material examined. Holotype. Australia: SA, Topgallant I., Investigator Group, 33°43.0'S, 134°36.6'E, 15 m, , K. Brandon and G.C.B. Poore, 21 Apr 1985, NMV J16579 (1 female, 6.0 mm).

Paratypes. Australia: **SA.** type locality, NMV J40676 (1 male, 7.0 mm); NMV J40677 (6 females, 4.5–5.0 mm; 7 males, 5.0–6.5 mm; 3 manca 2, 3.0–3.5 mm; 2 manca 1, 2.5 mm).

Description of female. Head with dorsal elevation (with 2 apices) posterior to eyes, anterolateral lobes angular, rostral point absent; lateral margin of head and pereonite 1 not incised.

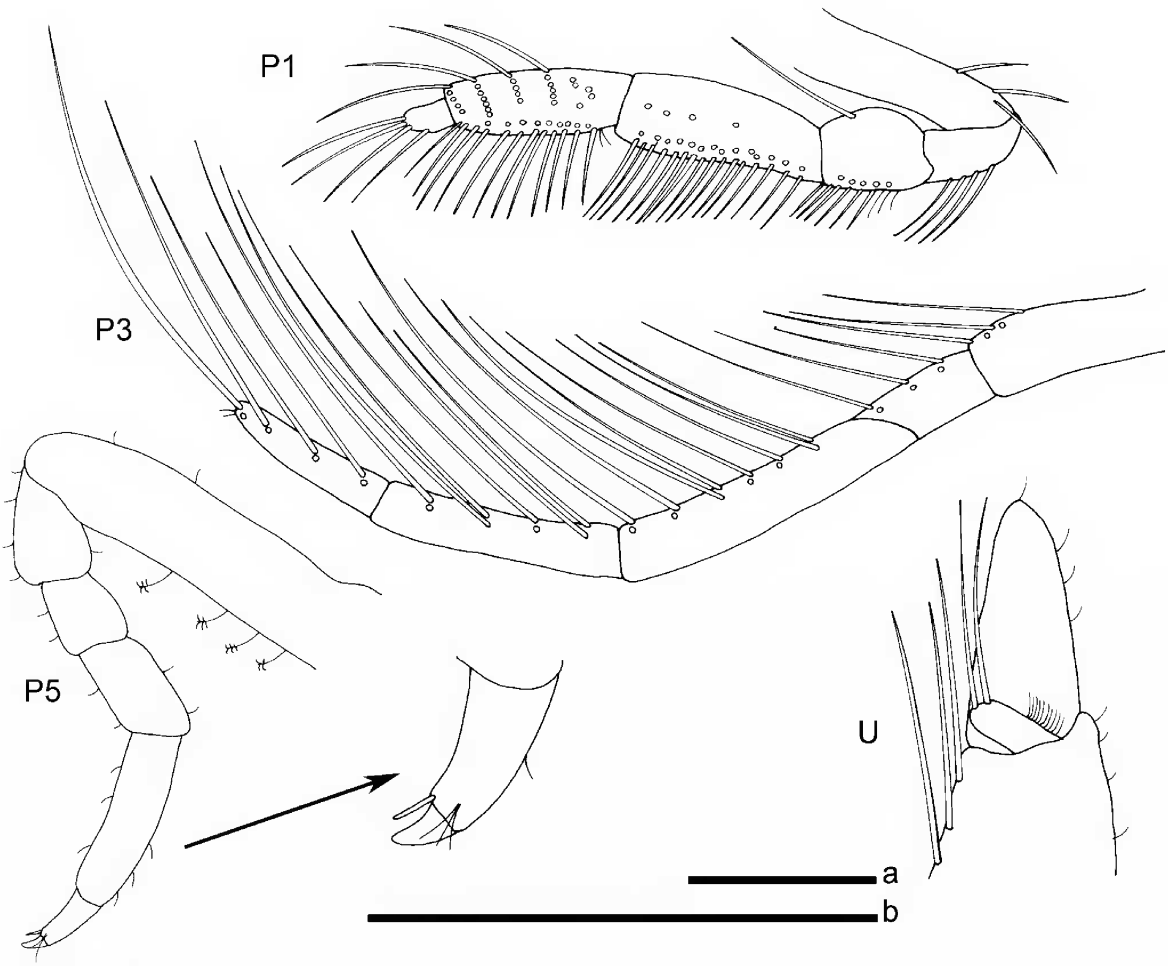

Figure 21. *Neastacilla soelae* sp. nov., female holotype (NMV J16652): P1, P3, P5, U. Scale: a (P1, P3) = 0.5 mm; b (U) = 0.5 mm

Pereonite 1 with posterior dorsal elevation. Pereonites 2 and 3 with dorsal and dorsolateral elevations, lateral margins extended. Pereonite 4 about 6 times as long as pereonite 3; with 2 dorsal elevations at midlength, 2 dorsolateral elevations posterior to them, a posterior dorsal elevation with 2 apices and 2 small dorsal elevations posteriorly; anterolateral margins extended and rounded. Pereonites 5–7 progressively shorter posteriorly, with small posterior dorsolateral and lateral elevations. Pleon longer than combined lengths of pereonites 5–7, with lateral wings, apex blunt.

Eyes small and subtriangular. Antenna 1 reaching to the end of the second peduncular article of antenna 2; aesthetascs present laterally on flagellum. Antenna 2 slender, more than half as long as body; flagellum of 3 articles ending in claw, 2 rows of scales along full length.

Maxilla 1 mesial lobe with 3 terminal setae; lateral lobe with 9 distal robust setae. Maxilla 2 mesial lobe with 13 plumose setae, middle lobe with 4 setae, lateral lobe with 3 setae. Maxillipedal endite with 10 mesial setae; 1 coupling hook; palp article 2 with mesial setal rows, article 3 with mesial and lateral setal rows, article 4 with mesial and lateral setae, article 5 with distal setae.

Pereopod 1 propodus as long as carpus; dactylus slightly longer than wide, without unguis. Pereopods 2–4 with small dactylus. Pereopods 5–7 dactylus denticulate, with unguis and secondary unguis; secondary unguis half length of primary unguis. Uropodal exopod with 2 setae of subequal length. Oostegite 4 with sutured small posterior lobe and thickened distolateral edges. A pair of fleshy pads are visible on the ventral surface of pereonite 5 that may be vestigial fifth oostegites.

4.5–6 mm.

Male. With less ornamentation than female. Head with 1 dorsal elevation between eyes. Pereonite 1 without dorsal elevations. Pereonites 2 and 3 without dorsal elevations. Pereonite 4 about 8 times as long as pereonite 3, constricted for the first quarter length, with 2 small elevations at quarter length and a

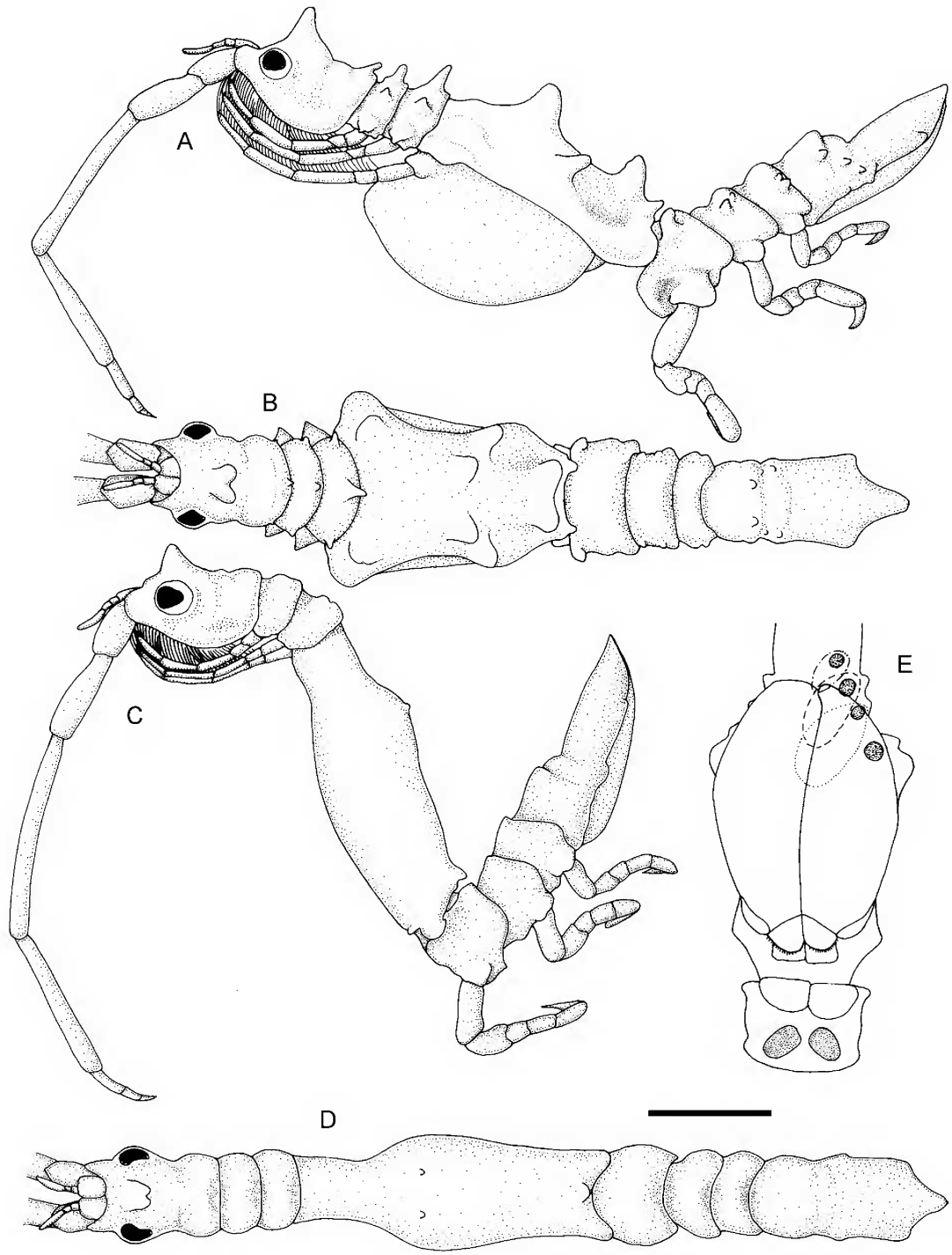

Figure 22. *Neastacilla tarni* sp. nov., female holotype (NMV J16579): A, lateral view; B, dorsal view; D, ventral view with oostegites. Male (NMV J40676): C, lateral view; E, dorsal view. Scale = 1.0 mm.

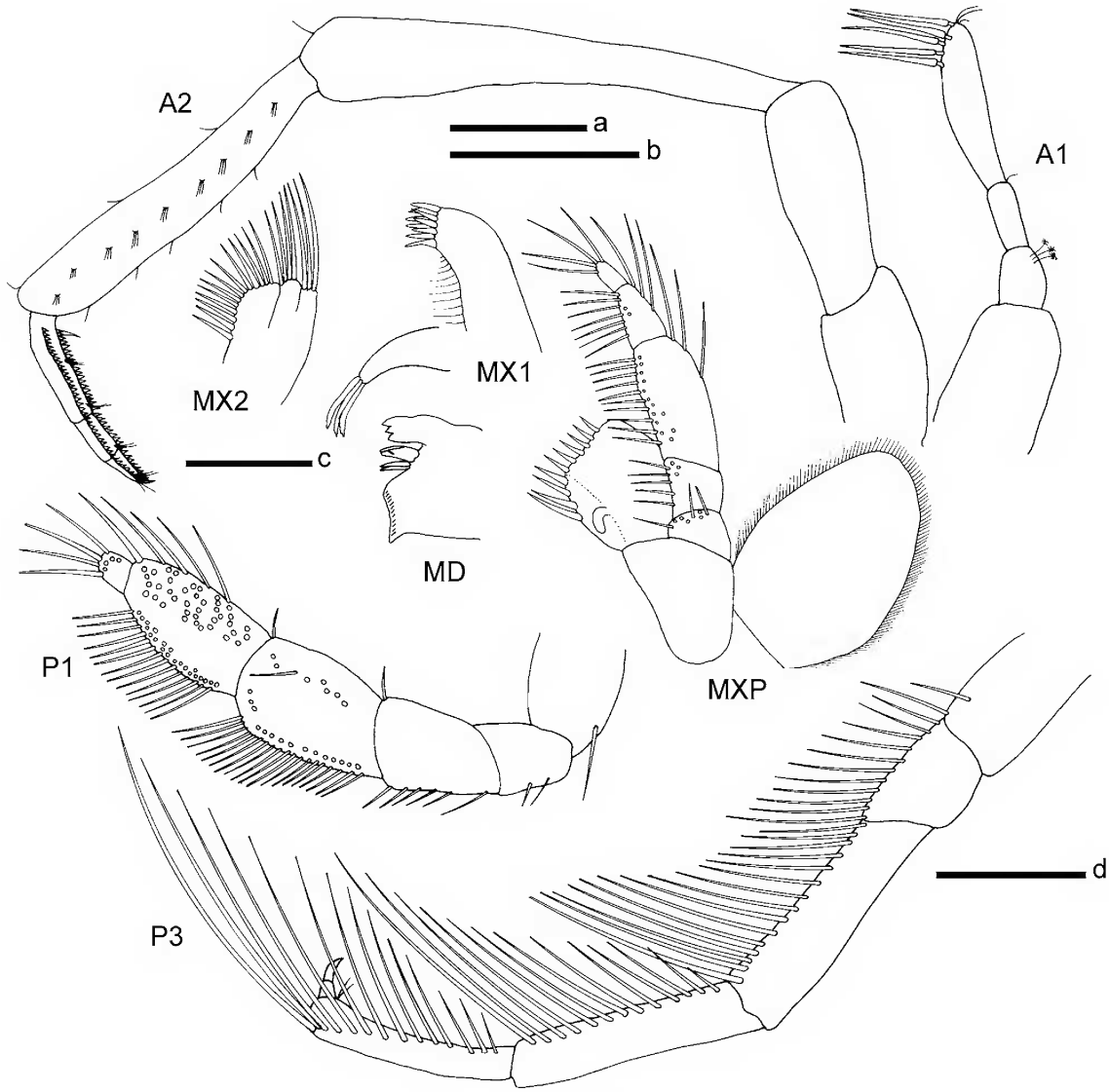

Figure 23. *Neastacilla tarni* sp. nov., female holotype (NMV J16579): A1, A2, left MXP, MX1, MX2, MD; P1, P3. Scales: a (A1) = 0.25 mm; b (A2) = 0.5 mm; c (MXP, MX1, MX2, MD) = 0.25 mm; d (P1, P3) = 0.5 mm.

posterior elevation. Pereonites 5–7 progressively shorter posteriorly, without dorsal elevations. Pleon longer than combined lengths of pereonites 5–7 , with lateral wings, apex blunt.

Antennae, mouthparts, pereopods and uropods as for female.

Pleopod 1 exopod with lateral notch and 2 plumose lateral setae of equal length. Pleopod 2 appendix masculina with ridge on posterior face; curved; extending quarter length past the distal edge of the endopod; apex simple. Penial plate widened proximally, apex simple.

5–7 mm.

Distribution. Australia: South Australia; subtidal.

Etymology. "Tarni" is an Australian Aboriginal name from the Kaurna language group in South Australia. It means "the sea".

Remarks. The female of this species resembles *Neastacilla tuberculata* (Thomson, 1879) from New Zealand. However the arrangement of the dorsal tubercles on pereonite 4 and the shape of the pleotelson distinguish the two species; in N. tarni the dorsal tubercles are medially and posteriorly placed on pereonite 4 and the pleotelson is narrow and sculpted with a blunt apex, whereas in N. tuberculata the tubercles are in the

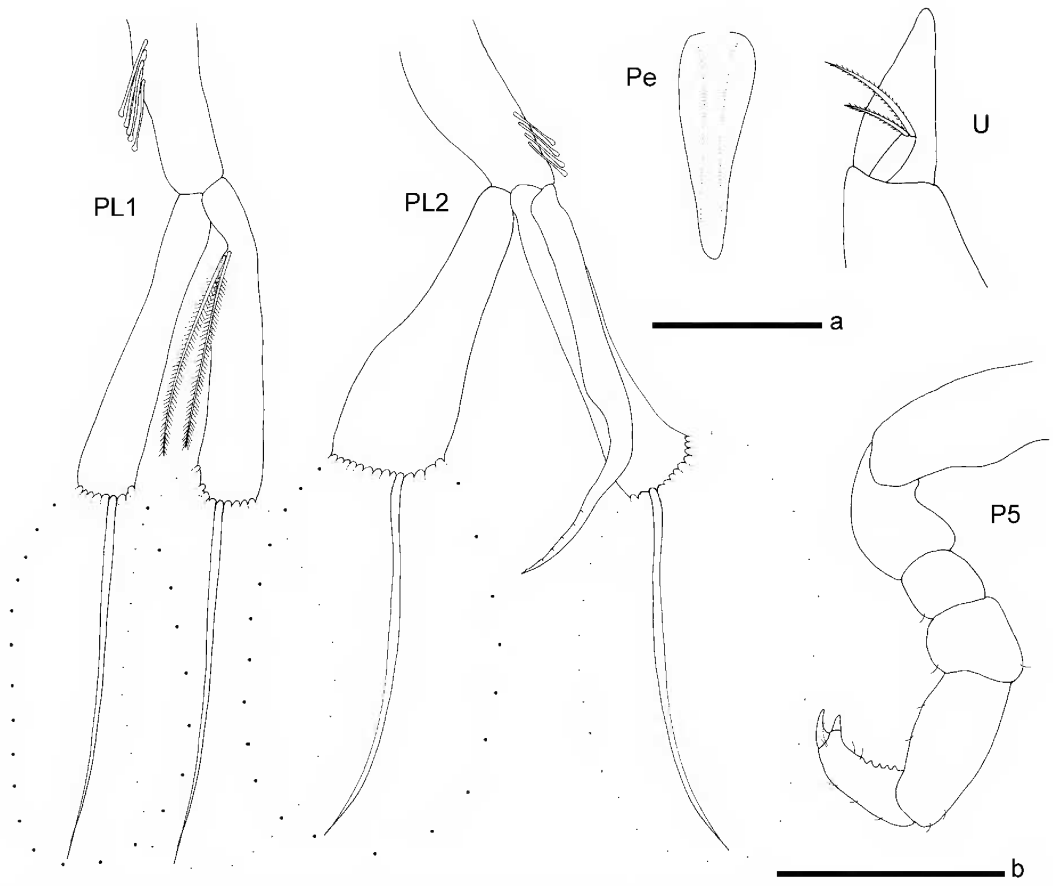

Figure 24. *Neastacilla tarni* sp. nov., female holotype (NMV J16579): P5, U. Male (NMV J40676): PL1, PL2, Pe. Scales: a (PL1, Pl2, Pe) = 0.2 mm; b (P5) = 0.5 mm.

anterior first half of pereonite 4 and the pleotelson is wide and tapered to an acute apex.

Neastacilla tattersalli Lew Ton and Poore

Neastacilla falclandica.—Tattersall, 1921: 244, pl. 10, fig. 1 (not Ohlin, 1901: 266, pl. 20).

Neastacilla tattersalli Lew Ton and Poore, 1986a: 193–195, fig. 3.—Lew Ton and Poore, 1986b: 99.—ICZN, 1987: 214.

Diagnosis of female. Eyes large and oval. Head without dorsal elevations, anterolateral lobes angular; lateral margin of head and pereonite 1 not incised. Pereonites 1–7 without dorsal elevations. Pereonites 2–4 with only small lateral expansions. Pereonite 4 9 times as long as pereonite 3. Pleon slightly longer than pereonites 5–7 combined, no distinct lateral wings present, apex bluntly rounded. Size unrecorded.

Male. Unknown.

Distribution. New Zealand, North Island.

Remarks. This species is diagnosed from the description of Lew Ton and Poore (1986) and most closely resembles *Neastacilla falclandica*. *N. tattersalli* can be distinguished from the former species by the long tapered pleon without lateral wings, angular anterolateral lobes of the head and the presence of two setae on the uropodal exopod.

Neastacilla tharnardi sp. nov.

Figures 25–27

Material examined. Holotype. Australia: Vic., Portland, Saxon Reef, 38°18.5'S, 141°38.5'E, 11 m, R. Wilson, 5 Mar 1992, NMV J24200 (1 female, 5 mm).

Paratypes. Australia: **SA.** Tiparra Bay, Tiparra Reef, 34°04.0'S, 137°23.0'E, 10 m, G.C.B. Poore and H.M. Lew Ton, 15 Mar 1985, NMV J16575 (1 male, 5 mm). Investigator Group, 33°43.0'S, 134°36.6'E, 20 m, K. Brandon and G.C.B. Poore, 21 Apr 1985, NMV J47326 (manca-2, 3 mm).

Description of female. Head with 2 dorsal elevations (each with 3 apices) between the eyes, anterolateral lobes angular with small tubercles, small rostral point present; lateral margin of head and pereonite 1 incised. Pereonite 1 with dorsal elevation

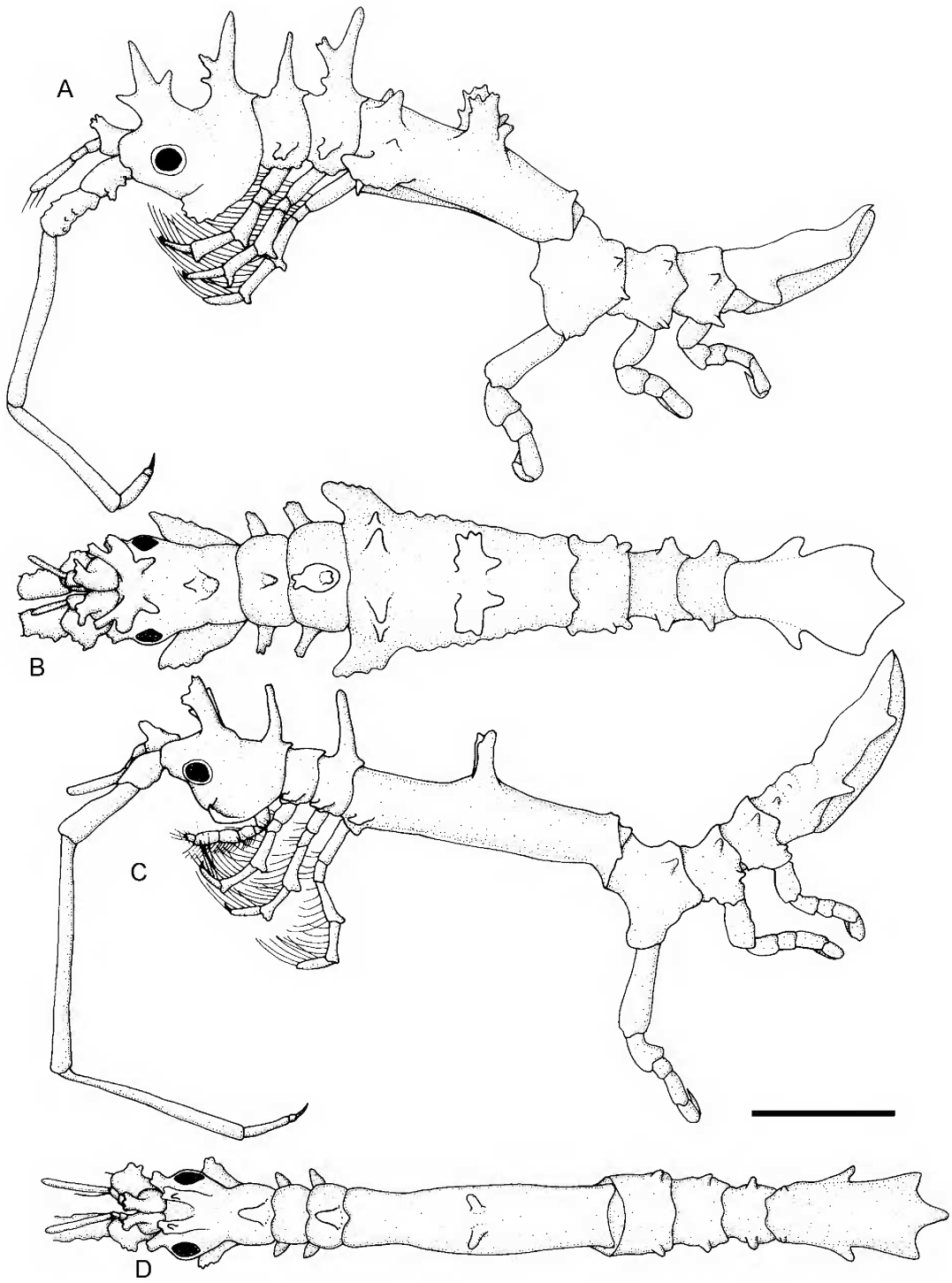

Figure 25. *Neastacilla tharnardi* sp. nov., female holotype (NMV J24200): A, lateral view; B, dorsal view. Male (NMV J16575): C, ventral view; D, dorsal view. Scale = 1.0 mm.

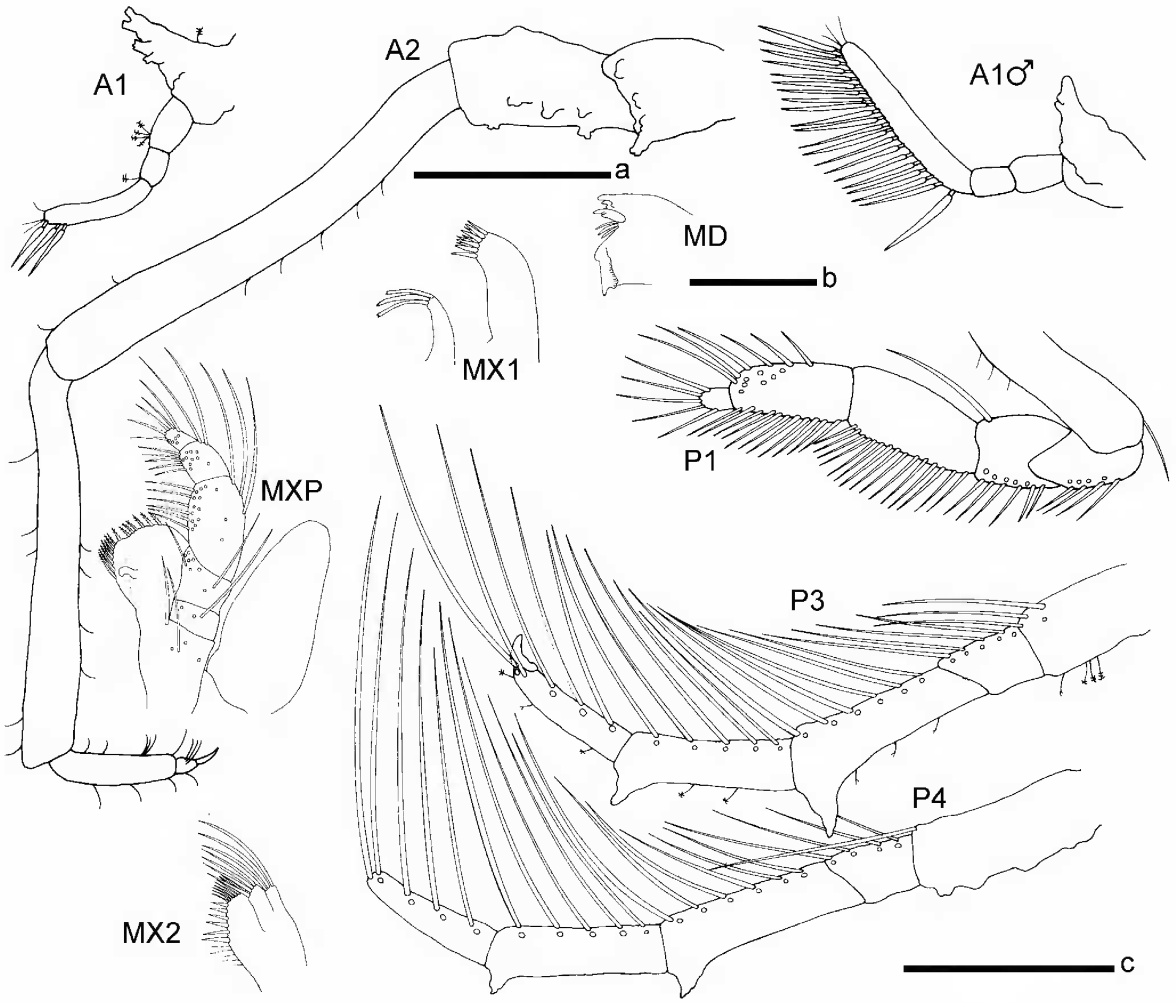

Figure 26. *Neastacilla tharnardi* sp. nov., female holotype (NMV J24200): A1, A2, left MXP, MX1, MX2, MD; P1, P3, P4. Male (NMV J16575): A1♂. Scales: a (A1, A1♂, A2) = 0.5 mm; b (MXP, MX1, MX2, MD) = 0.2 mm; c (P1, P3, P4) = 0.5 mm.

with 3 apices; with large, laterally curved anterolateral expansion. Pereonite 2 with dorsal elevation with single apex, with narrow lateral extensions. Pereonite 3 with dorsal elevation with 3 apices, with narrow lateral extensions. Pereonite 4 about 4 times as long as pereonite 3, with 4 anterior dorsal elevations, 2 dorsal elevations with many apices at midlength and 2 small dorsal elevations posteriorly, with anterolateral margins extended. Pereonites 5–7 progressively smaller, with small posterior dorsolateral elevations. Pleon longer than combined lengths of pereonites 5–7, with lateral wings, apex acute.

Eyes small and round. Antenna 1 reaching to the end of the third peduncular article of antenna 2; aesthetascs present laterally on flagellum. Antenna 2 slender, more than half as long as body; flagellum of two articles and claw, second article very small, with a row of scales along full length.

Maxilla 1 mesial lobe with 3 terminal setae; lateral lobe with 10 distal robust setae. Maxilla 2 mesial lobe with 14 plumose setae, middle lobe with 4 setae, lateral lobe with 3 setae. Maxillipedal endite with 14 mesial setae; 1 coupling hook; palp article 2 with mesial setal rows, article 3 with mesial and lateral setal rows, article 4 with mesial and lateral setae, article 5 with mesial and distal setae.

Pereopod 1 propodus as long as carpus; dactylus slightly longer than wide, without unguis. Pereopods 2 and 3 with small dactylus. Pereopod 4 without dactylus. Pereopods 2–4 slightly dorsoventrally flattened, with tuberculate lateral elevations at proximal edges of the merus and carpus. Pereopods 5–7 dactylus not denticulate, with primary and secondary unguis; secondary unguis half length of primary unguis. Uropodal exopod with 2 setae of subequal length. Oostegite 4 without a

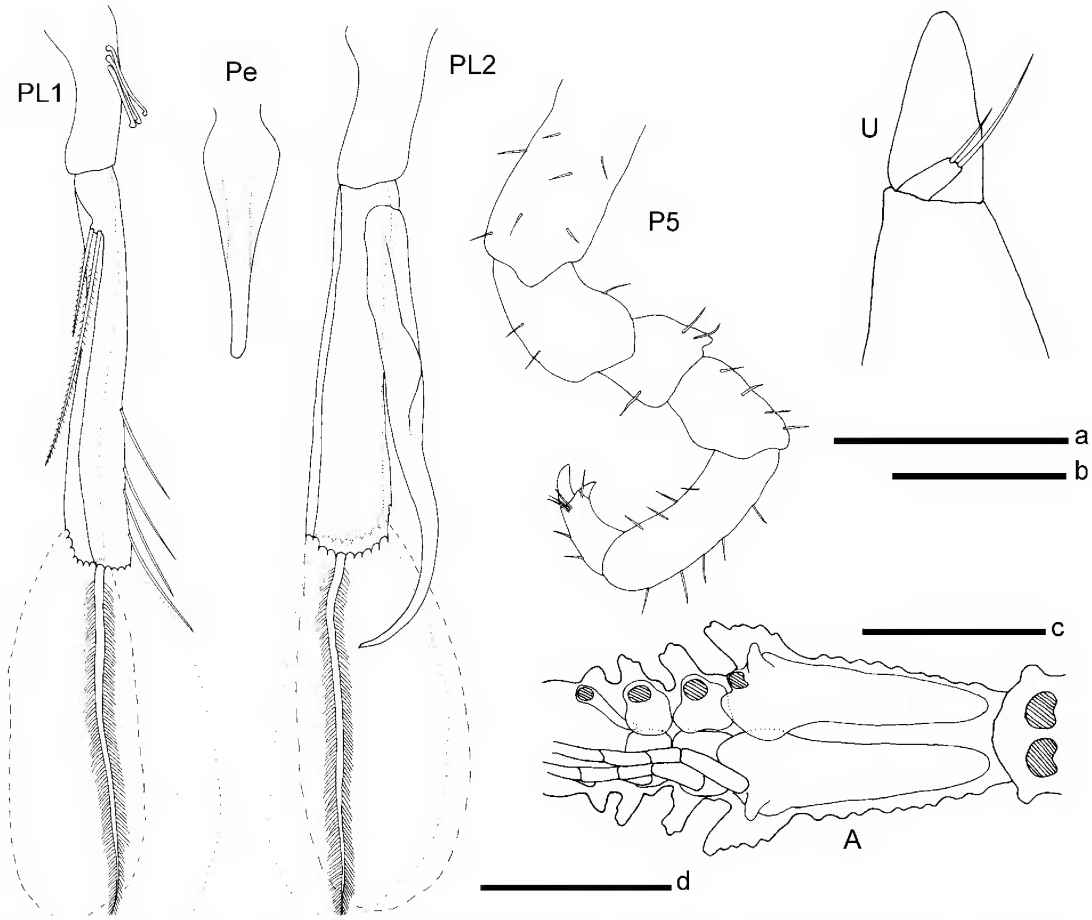

Figure 27. *Neastacilla tharnardi* sp. nov., male (NMV J16575): PL1, PL2, Pe. Female holotype (NMV J24200): U; A, ventral view with oostegites. Scales: a (U) = 0.5 mm; b (P5) = 0.5 mm; c (A) = 1.0 mm; d (PL1, PL2, Pe) = 0.5 mm

suture, with ventrally projecting elevation posterior to insertion of pereopod 4.

5 mm.

Male. With less ornamentation than female. Head with 2 dorsal elevations (each with 2 apices) between eyes, anterolateral margins angular with small tubercles. Pereonite 1 with dorsal elevation with a single apex. Pereonite 2 without dorsal elevations, with lateral extensions. Pereonite 3 with dorsal tubercle with single apex, with lateral extensions. Pereonite 4 about 7 times as long as pereonite 3, constricted for the first quarter length; with 2 anterior dorsal elevations at midlength. Pereonites 5–7 progressively smaller, with small posterior dorsolateral elevations. Pleon longer than combined lengths of pereonites 5–7, with lateral wings, apex acute.

Antennae, mouthparts, pereopods and uropods as for female.

Pleopod 1 exopod with lateral notch and 2 plumose lateral setae of unequal length. Pleopod 2 appendix masculina with ridge on posterior face; curved; extending quarter length past the endopod; apex simple. Penial plate proximally widened, distally tapered and apex simple.

5 mm.

Distribution. Australia: Victoria, South Australia; subtidal to 20 m depth.

Etymology. "Tharnardi" is an Australian Aboriginal word in the Yindjibarndi language from north-western Australia. It means "the sea".

Remarks. This species of *Neastacilla* superficially most resembles species of *Parastacilla* Hale, 1946 (King, 2000). The lateral extension of the head and pereonite 1 as well as the morphology of the anterior pereonites are very similar and no other *Neastacilla* species. However, in *N. tharnardi* pereopods 2 and 3 possess dactyli with claws, antenna 2 is elongate and there are no dorsolateral wings on the pleotelson.

Neastacilla tuberculata (Thomson)

Figures 28–29

Arcturus tuberculatus Thomson, 1879: 416–417, pl. 19 figs 1–4.—Thomson, 1881: 206, pl. 7 fig. 2.—Thomson and Chilton, 1886: 156.—Filhol, 1885, 437. (not Arcturus tuberculatus Latreille, 1829, junior synonym of Arcturus baffini Sabine).

Astacilla tuberculata.—Hurley, 1961: 264.

Neastacilla tuberculata.—Poore, 1981: 333.

Material examined. New Zealand: Lyttelton Harbour, 5 m, Aug 1997, NMV J40643 (1 male, 4.5 mm). Otago Harbour, 12.1 m, 4 Oct 1965, NMV J16559 (1 female, 4.5 mm), NMV J16560 (1 male, 4 mm), NMV J16558 (1 female, 5 mm) NMV J16562 (1 male, 5 mm). Otago Harbour, 6 m, 18 Jun 1965, NMV J 16560 (3 females, 4–4.5 mm; 5 males, 3.5–5 mm; 2 juveniles, 3 mm). Otago Harbour, 13 m, 30 Apr 1965, NMV J16561 (1 male, 5 mm). Otago Harbour, 13 m, 4 Oct 1965, NMV J16556 (1 female, 5 mm). Otago Harbour, 4.1 m, 13 Jun 1965, NMV J12927 (1 female, 4 mm). Otago Harbour, 2.9 m, 7 Jan 1967, NMV J40644 (1 female, 4.5 mm). The Snares, 146 m, 26 Nov 1974, NMV J16557 (1 male, 4.5 mm).

Description of female. Head with 2 dorsal elevations between eyes, small dorsal elevation in front of eyes and an elevation posterior to eyes on dorsal midline, anterolateral margins angular, rostral point absent. Lateral margin of head and pereonite 1 not incised. Pereonite 1 with 2 elevations along dorsal line and pair of dorsolateral elevations. Pereonites 2 and 3 progressively wider; with dorsal and dorsolateral elevations, anterolateral margins extended. Pereonite 4 about 7 times as long as pereonite 3, with a large dorsal elevation (with 3 apices) covering the first two-thirds length, small anterior dorsolateral elevations,dorsolateral elevations at midlength, a posterodorsal elevation on the dorsal line and 2 small dorsolateral elevations posterior to that, with anterolateral margins rounded and extended. Pereonites 5–7 progressively smaller, with small dorsal and dorsolateral elevations, lateral margin extended. Pleon longer than combined lengths of pereonites 5–7 , with 2 sets of lateral wings, with small dorsal and dorsolateral elevations, flared posteriorly and tapering to acute apex.

Eyes small and round. Antenna 1 reaching to the end of third peduncular article of antenna 2; aesthetascs attached laterally and distally on flagellum. Antenna 2 slender, more than half as long as body; flagellum of 3 articles and claw, with row of scales along full length.

Maxilla 1 inner lobe with 3 terminal setae; outer lobe with 10 distal robust setae. Maxilla 2 inner lobe with 18 plumose setae, middle lobe with 3 setae, outer lobe with 3 setae. Maxillipedal endite with 14 mesial setae; 1 coupling hook; palp article 2 with mesial setal rows, article 3 with mesial and lateral setal rows, article 4 with mesial setae, article 5 with mesial and distal setae.

Pereopod 1 propodus as long as carpus; dactylus slightly longer than wide, without unguis. Pereopods 2–4 with small dactylus. Pereopods 5–7 progressively smaller; dactylus denticulate, with unguis and secondary unguis; secondary unguis half length of primary unguis. Uropodal exopod with 2 setae of subequal length. Oostegite 4 with sutured small posterior lobe.

4–5 mm.

Male. With less ornamentation than female. Head with 2 dorsal elevations (sometimes fused) between eyes; anterolateral margins angular; rostral point absent; lateral margin of head and pereonite 1 not incised. Pereonite 1 with small dorsal and dorsolateral elevations. Pereonite 2 and 3 with dorsal and dorsolateral elevations. Pereonite 4 about 6 times as long as pereo-nite 3; with an anterior dorsal elevation at third length, a small posterior dorsal elevation and 2 small posterior dorsolateral elevations. Pereonites 5–7 progressively smaller without distinct dorsal elevations except for pereonite 5 which has a small posterior dorsal elevation. Pleon longer than combined lengths of pereonites 5–7, with 2 sets of lateral wings, with small dorsal elevations, tapering to an acute apex.

Antennae, mouthparts, pereopods and uropods as for female.

Pleopod 1 exopod with lateral notch and 2 plumose lateral setae of equal length. Pleopod 2 appendix masculina with ridge on posterior face; curved; extending more than third length past the endopod; apex tapered. Penial plate simple and straight.

3.5–5.0 mm.

Distribution. New Zealand; subtidal to 201 m depth.

Remarks. This species was briefly described by Thomson (1879) who illustrated only the lateral view of a female. The highly ornamented body, particularly the dorsally elevated pereonite 4, makes it distinguishable from other New Zealand arcturids.

Neastacilla yuriel sp. nov.

Figures 30–32

Material examined. Holotype. Australia: SA, Flinders I., Hotspot Reef, 33°40.5'S, 134°22.0'E, 17 m, G.C.B. Poore, SCUBA, 19 Apr 1985, NMV J16553 (1 female, 3.5 mm).

Paratypes. Australia: **SA,** collected with holotype, NMV J40678 (1 female, 3 mm), NMV J40693 (1 male, 3.5 mm), NMV J40694 (1 male, 4 mm), NMV J16554 (4 females, 3.5–4 mm), NMV J16549 (1 male, 3.5 mm). Flinders I., Hotspot Reef, 33°40.8'S, 134°22.5'E, 21 m, 20 Apr 1985, NMV J16547 (manca 2, 3 mm). Topgallant I., 33°43.0'S, 134°36.6'E, 25 m, 21 Apr 1985, NMV J16546 (1 male, 3 mm); 33°43.0'S, 134°36.6'E, 12 m, 21 Apr 1985, NMV J16548 (2 females, 3–3.5 mm; 2 males, 4 mm; manca 2, 2.5 mm). **Vic.** Central Bass Strait, 38°33.4'S, 144°54.9'E, 55 m, 12 Nov 1981, NMV J8853 (1 male, 4 mm). Tas. Spiky Bridge coastal reserve, 42°08.0'S, 148°08.0'E, 4 m, 21 Mar 1988, NMV J40648 (1 female, 3.5 mm; 2 manca 2, 2.5 mm). Bicheno, 41°53.0'S, 147°18.0'E, 7 m, 23 Mar 1988, NMV J40645 (1 female, 4 mm). **WA.** Breaksea I., 35°03.9'S, 118°02.9'E, 15 m, 7 Apr 1984, NMV J16632 (2 females, 3 mm; 1 male, 3.5 mm). King George Sound, 35°00.7'S, 118°10.1'E, 27 m, 15 Apr 1984, NMV J16630 (1 female, 3 mm).

Description of female. Head with dorsal elevations slightly posterior to the eyes, anterolateral margins angular, small rostral point present; lateral margin of head and pereonite 1 not incised. Pereonite 1 with 2 indistinct dorsolateral elevations. Pereonites 2 and 3 with indistinct dorsal elevations, with lateral margins extended. Pereonite 4 about 7 times as long as pereonite 3, with large dorsal elevation at midlength, anterolateral margins rounded and extended. Pereonites 5–7 progressively smaller, without distinct elevations. Pleon longer than combined lengths of pereonites 5–7, with 2 sets of lateral wings, without dorsal elevations, tapering to subacute apex.

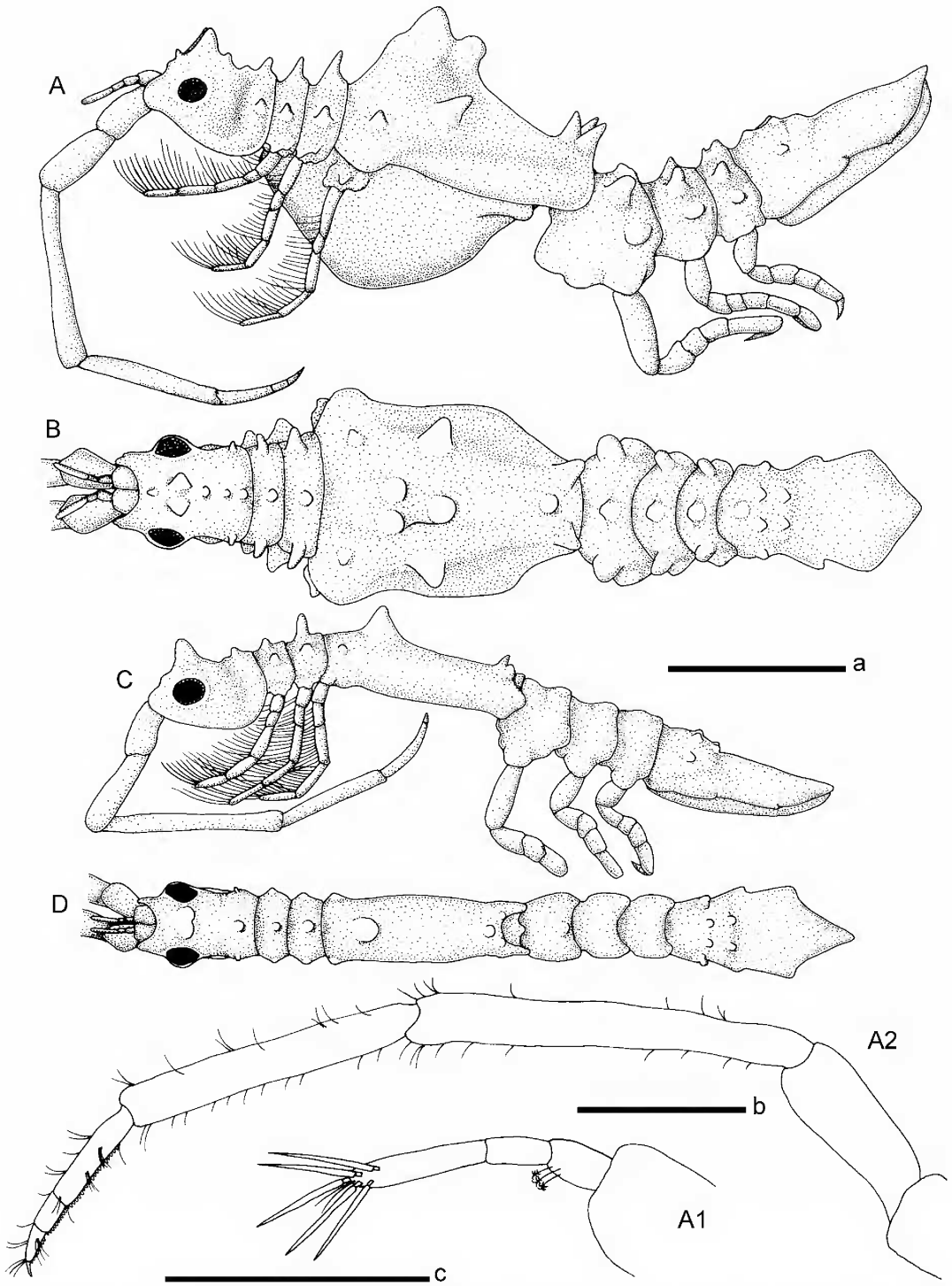

Figure 28. *Neastacilla tuberculata* (Thomson, 1879), female (NMV J16559): A, lateral view; B, dorsal view; A1, A2, antenna 2. Male (NMV J16560): C, lateral view; D, dorsal view. Scales = a (A–D) = 1.0 mm; b (A2) = 0.5 mm; c (A1) = 0.5 mm.

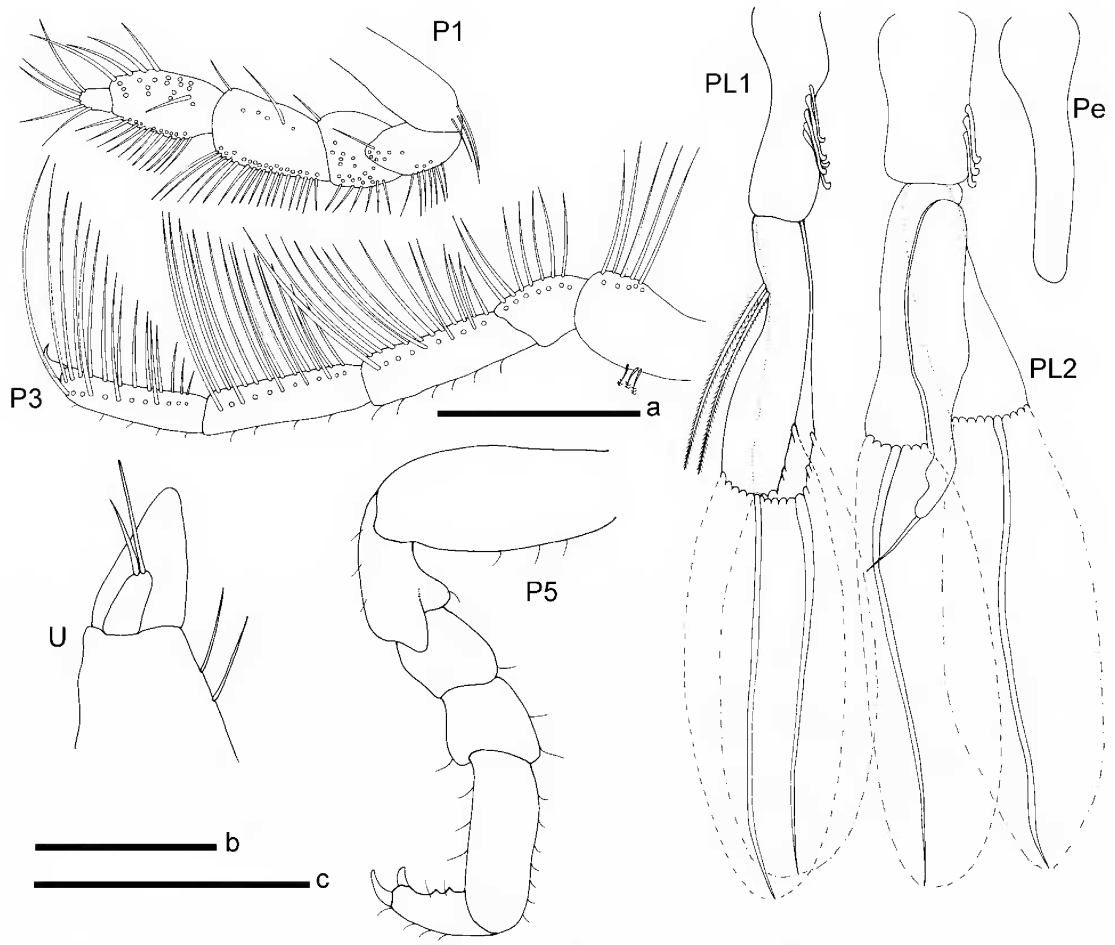

Figure 29. *Neastacilla tuberculata* (Thomson, 1879), female (NMV J16559): P1, P3, P5, U. Male (NMV J16560): PL1, PL2, Pe Scales: a (P1, P3) = 0.5 mm; b (P5) = 0.5 mm; c (PL1, PL2, Pe) = 0.5 mm.

Antenna 1 reaching to end of third peduncular article of antenna 2; aesthetascs present laterally and distally on flagellum. Antenna 2 slender, more than half as long as body; flagellum of 3 articles and claw; with row of scales along full length.

Maxilla 1 inner lobe with 3 terminal setae; outer lobe with 10 distal robust setae. Maxilla 2 inner lobe with 18 plumose setae, middle lobe with three setae, outer lobe with three setae. Maxillipedal endite with 14 mesial setae; one coupling hook; palp article 2 with mesial setal rows, article 3 with mesial and lateral setal rows, article 4 with mesial setae, article 5 with mesial and distal setae.

Pereopod 1 propodus as long as carpus; dactylus slightly longer than wide, without unguis. Pereopods 2–4 with small dactylus. Pereopods 5–7 progressively smaller, dactylus denticulate; with primary and secondary unguis; secondary unguis half length of primary unguis. Uropodal exopod with 2 setae of subequal length. Oostegite 4 with sutured small posterior lobe. 3–4 mm.

Male. With less ornamentation than female. Head with indistinct dorsal elevation between eyes, anterolateral margins angular, very small rostral point present; lateral margin of head and pereonite 1 not incised. Pereonite 1 with indistinct dorsal and dorsolateral elevations. Pereonite 2 and 3 with indistinct dorsal elevations, lateral margins not extended. Pereonite 4 about 6 times as long as pereonite 3; constricted in dorsal view for first fifth of length, with 2 small posterior dorsal elevations at midlength. Pereonites 5–7 progressively smaller, without dorsal elevations. Pereonites 6 and 7 without dorsal elevations. Pleon longer than combined lengths of pereonites 5–7, with 2 sets of lateral wings, with small dorsal elevations, tapering to a subacute apex.

Antennae, mouthparts, pereopods and uropods as for female.

Pleopod 1 exopod with lateral notch and 2 plumose setae of equal length. Pleopod 2 appendix masculina with ridge on

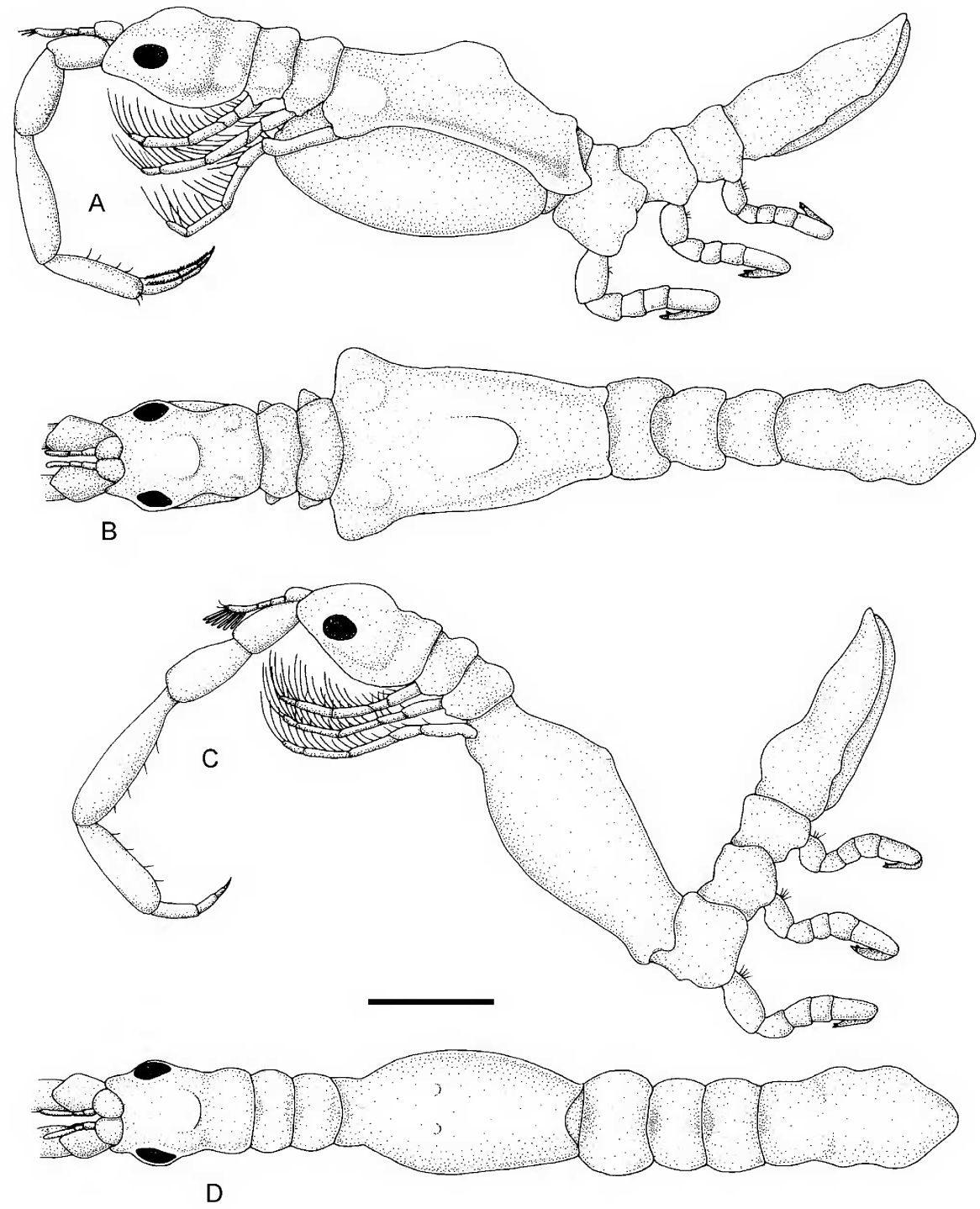

Figure 30. *Neastacilla yuriel* sp. nov., female holotype (NMV J16553): A, lateral view; B, dorsal view. Male (NMV J40693): C, lateral view; D, dorsal view. Scale = 1.0 mm.

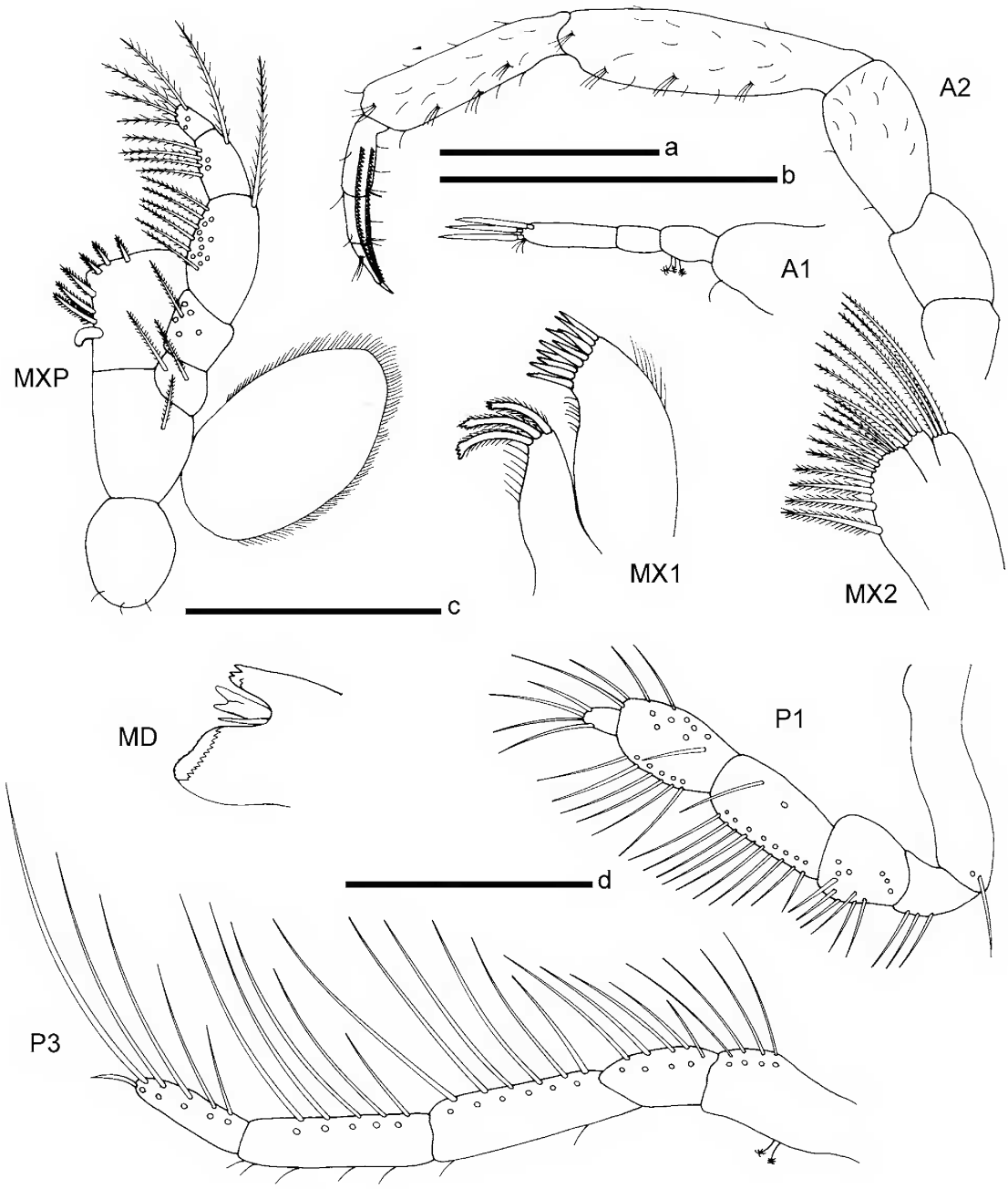

Figure 31. *Neastacilla yuriel* sp. nov., female holotype (NMV J16553): A1, A2, left MXP, MX1, MX2, MD; P1, P3. Scales: a (A2) = 0.5 mm; b (A2) = 0.5 mm; c (MXP, MX1, MX2, MD) = 0.5 mm; d (P1, P3) = 0.5 mm.

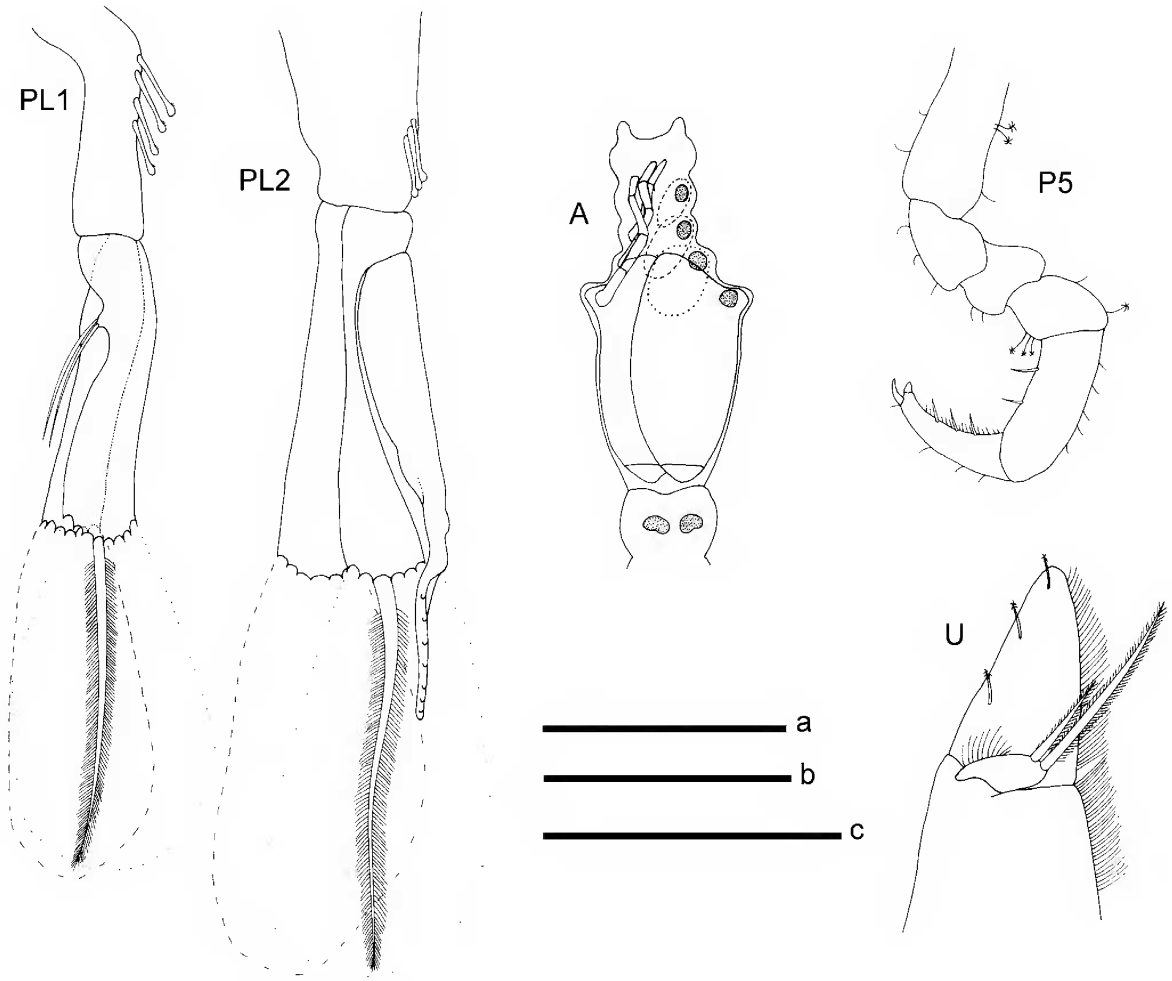

Figure 32. *Neastacilla yuriel* sp. nov., male (NMV J40693): PL1, PL2, pleopod 2. Female holotype (NMV J16553): U; A, ventral view with oostegites; P5. Scales: a (A) = 1.0 mm; b (P5) = 0.5 mm; c (PL1, PL2, Pe, U) = 0.2 mm.

posterior face; curved; extending third length past endopod; apex simple. Penial plate unknown.

Distribution. Australia: Victoria, Tasmania, South Australia, Western Australia; subtidal to 55 m depth.

Etymology. "Yuriel" is an Australian Aboriginal word for "coastal bay" in reference to the area specimens were first taken from.

Remarks. This species is the smallest of the Australian arcturids (2.5–4 mm) making the species instantly recognisable. The ornamentation of females has been seen to differ slightly within populations. In a few specimens the dorsal elevation on pereonite 4 possessed two apices and the small elevations on the head and pereonites 1–4 were more enlarged.

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